The newsweekly of enterprise network computing

NetworkWorld

Linux LOAD

Get ready for a whole new batch of Linux products.

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August 2, 1999 Volume 16, Number 31

The network portal: www.nwfusion.com

Instant messaging tiff may speed standard

AOL changes course, joins standards effort.

BY CAROLYN DUFFY MARSAN

A move to get instant messaging products to talk to one another gained momentum last week after a public shouting match between Microsoft and America Online helped nudge AOL into a standards effort it had previously shunned.

Development of an interoperability standard would be good news for corporate customers, who are starting to deploy instant messaging technology in workgroup environments. Instant messaging systems let users communicate in real time with select individuals who are also online.

"An instant messaging standard is inevitable, and it seems the technology has penetrated the market to the point that a standard is necessary," says Randy Vaughn, an IS professor at Baylor University who uses instant messaging software to communicate with his students instead of fielding telephone calls.

Changing course, AOL officials Friday said they will work closely with the Internet Engineering Task Force (IETF) group developing the instant

See **Messaging**, page 52

The Upshot

Corporate customers should benefit from AOL's decision to unite with other vendors to develop a standard way for instant messaging products to work together. Instant messaging, once considered a novelty, is gaining in popularity as a corporate network application. A standard will enable internal and external end users, even those working at home, to swap instant messages regardless of which vendor's product they are using.

BOTCHED BY BUREAUCRACY

I n 1988, the Department of Defense began an effort to boost the security of its nonclassified networks. By 1996, the program had fallen flat, the victim of bureaucratic infighting. Today, the agency is launching a new effort. But will the results be different? **PAGE 36.**

OCTAVIO DIAZ

Where has all the cool net gear gone?

BY JEFF CARUSO

Innovation has slowed to a crawl in the enterprise network equipment market.

For proof, just check out the kinds of new companies being funded by the top venture capital firms. Institutional Venture Partners, for instance, invested millions of dollars in four enterprise network equipment makers in 1996, but the Menlo Park, Calif., firm has invested in none since.

This is not to say that innovation has entirely disappeared.

Searching for Innovation

It's more that vendors and investors expect enterprise customers to start spending more of their money on managed network services and other offerings — and less on customer premises equipment.

Most of the money earmarked for high-tech companies these days is flowing into emerging service providers,

See **Innovation**, page 53

Big improvements coming to application management

BY JEFF CARUSO

A host of new measurement tools will debut soon, giving net managers better insight into how network applications are performing.

NextPoint Networks will release Version 2.0 of its S3 product next week, expanding the types of applications the tool can monitor and adding the capability to predict application performance based on current trends.

See **Measurement**, page 14

ANCIENT DILEMMA

YOU WANT TOP PERFORMANCE.

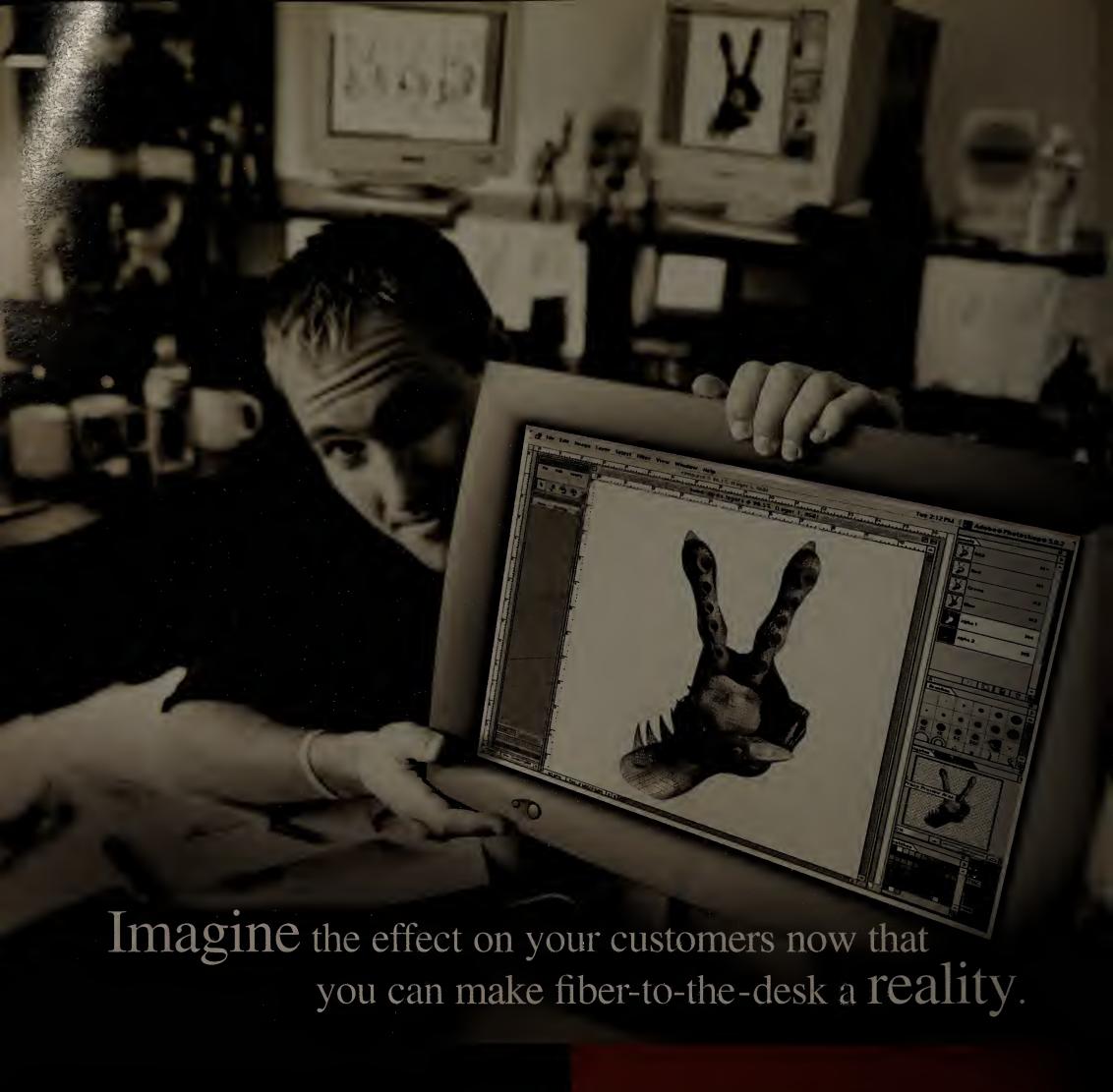YOU DON'T WANT TO PAY TOP DOLLAR.

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NetworkWorld

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Don Montabana has found a winning way to run the University of Pennsylvania's networks. Page 42.

Special Focus

DIRECTORY INTEGRATION

Microsoft makes important shift with the purchase of Zoomit. Page 30.

FEATURES

BOTCHED BY BUREAUCRACY

In 1988, the Department of Defense began an effort to boost the security of its nonclassified networks. By 1996, the program had fallen flat, the victim of bureaucratic infighting. Today, the agency is launching a new effort. But will the results be different? **Page 36.**

REVIEW:

If servers were ice cream cones, the Micron NetFrame 5200 would be a scoop of vanilla, no jimmies. See review on **Page 39.**

NEWS BRIEFS, AUGUST 2, 1999

Domino and AS/400 tie the knot

When Lotus and parent company IBM began extolling the virtues of running the Lotus Domino server on IBM's AS/400 two years back, know-it-all industry analysts and press types let out a collective yawn. Who would devote such an expensive machine to software that runs just fine on a low-end server running Windows NT, they asked? The answer so far turns out to be 28% of Domino users, says IBM, and that's why Big Blue last week announced the upcoming release of three lower-priced AS/400 servers that will be optimized specifically for Domino. Scheduled to ship Sept. 24, the Domino-equipped machines will sell for between $11,000 and $22,500. A barebones AS/400 today starts at $27,000 without software.

Big Blue's AS/400 will be outfitted for the Domino crowd.

Ruling targets Internet gambling

The New York State Supreme Court last week said the state's Attorney General's office was within its rights in acting with federal prosecutors to freeze $800,000 in assets owned by World International Gaming Corp., which conducts gambling operations over the Internet. While the company is based in Bohemia, N.Y., World International Gaming uses servers that are on the Caribbean island of Antigua, where gambling is legal. New York prohibits casino gambling. Justice Charles Ramos decided "the act of entering the bet and transmitting the information from New York via the Internet [constitutes] gambling activity within New York." World Interactive Gaming plans to appeal.

ATM Forum transfers leadership

There's been a change at the top of the ATM Forum. George Dobrowski has stepped down after serving two years as president and will be replaced by Marlis Humphrey, who had been serving as chairman. Humphrey will now hold both titles. Dobrowski, who was the group's technical chairman before becoming president, recently became chief technology officer at Ficon Technology. Humphrey, a consultant at Paradyne, is in the process of moving to a new job where she will be involved in technology and standards development.

Microsoft's Ballmer reshuffling deck

The "Ballmerization" of Microsoft continued last week with news that Paul Maritz,

vice president of the developer group, is taking a lesser role and could retire. It is the latest in a series of moves reportedly orchestrated by Steve Ballmer, who took over as Microsoft president in March. Earlier this year, Chief Technology Officer Nathan Myhrvold took a leave of absence and vice presidents Pete Higgins and John Ludwig left the company. David Vaskevitch, who reports to Maritz, will assume responsibility for the developer group, according to *The Wall Street Journal*.

New bells for Catalyst 5000 switches

Cisco this week is expected to unveil three new modules for its Catalyst 5000 LAN switches that feature enhanced quality-of-service (QoS) capabilities and greater port density. The new products include a 24-port 10/100 RJ-45 module, a 36-port 10/100 RJ-21 module and a 24-port 100FX MT-RJ multimode fiber module. QoS features on the modules include wire-speed Layer 3 forwarding and Fast EtherChannel, 802.1Q/p. These features are designed to let users classify traffic into one of multiple priority classes and manage those classes to ensure that applications such as voice are prioritized.

Do hackers toast marshmallows?

Hackers looking to get away from it all, and at the same time hone their skills, will be setting up tents near Berlin this week as part of a three-day event sponsored by Germany's premiere hacker group, the Chaos Computer Club. The camp will be divided into theme "villages," where participants can choose the topic that most interests them. Typical of the events will be the Linux Deathmatch, a real-time hacking competition.

Company looks to quiet crosstalk

Start-up Bandspeed claims it has found a way to solve one of the most vexing digital subscriber line (DSL) problems: crosstalk. Bandspeed says its Channel Resolution System (CRS) eliminates noise from nearby wires that disrupts asymmetric DSL by forcing it to run at lower speeds. In the best case, CRS can increase the bandwidth on a DSL line by two-and-a-half times, the company says. Because DSL signals die out as they travel down a wire, starting off with higher bandwidth means more bandwidth can be delivered farther. The CRS technology is expected to show up in DSL equipment.

Products on tap for LinuxWorld release

TurboLinux, IBM among vendors with new wares.
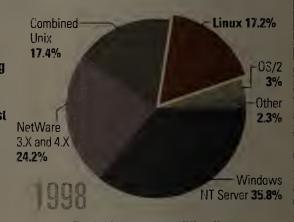
BY ROBIN SCHREIER HOHMAN AND DENI CONNOR

TurboLinux is readying software for tying Linux, Windows NT and Solaris servers into the same clusters — a product that should be among the more interesting enterprise Linux offerings making their debuts at next week's LinuxWorld Conference & Expo.

and Red Hat Software, perhaps the Linux market's best-known vendor, is expected to take advantage of the show buzz and start selling its stock. Separately, hard-charging VA Linux Systems is expected to announce its initial public offering of stock.

IBM is expected to use the conference to outline a series of Linux initiatives involving everything from Lotus Notes to Tivoli manage-

Linux leaps

The Linux server operating system more than doubled in market share last year from 1997, as the software became more accepted in the enterprise.

Combined Unix 17.4%
Linux 17.2%
OS/2 3%
Other 2.3%
NetWare 3.X and 4.X 24.2%
Windows NT Server 35.8%

1998

SOURCE: IDC, FRAMINGHAM, MASS. Total shipments: **4.3 million licenses**

The San Jose conference promises to be a who's who and what's what of the Linux market, which more than doubled in size from 1997 to 1998 and has maintained momentum so far this year.

Linux creator Linus Torvalds will be among the conference's keynote speakers,
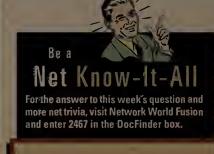
ment software to Netfinity servers. Others, such as Magic Software and Nova-Stor, will also make Linux-related announcements.

As for TurboLinux, its new TurboCluster server, currently in beta testing, will be demonstrated running on IBM Netfinity servers, as well as at Compaq's and Adaptec's booths.

The software, which runs on Intel and Alpha processors, will let customers bind 20 or more machines into a cluster for handling Web or other applications that require high scalability and reliability.

Sun offers a clustering product that scales up to 35 servers, and Microsoft offers software for clustering a pair of multiprocessor machines. But observers say the Turbo-Linux software will let companies build clusters that are more scalable and less expensive.

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Standard needed so VPN failures can be detected

BY TIM GREENE

The Internet Engineering Task Force is working to plug a gap in the IP Security virtual private network standard that lets VPN gear continue to send packets even after the equipment receiving the data has failed.

Because IPSec is the authentication and encryption standard that most VPN vendors are adopting, the standard should spell out how VPN tunnel servers can quickly discover that the peer or client it was talking to has died, industry experts say.

Otherwise vendors will keep using proprietary methods that inhibit full interoperability among multivendor gear. Such interoperability is key to an important potential use of VPNs: granting business partners secure access, says Eric Zines, a consultant with TeleChoice, a telecom consulting group in Boston.

Interoperability should let your business partner's gear talk to yours, no matter what company makes it, as long as they both meet the IPSec standard. And that should include a keep-alive feature that would cure the problem, Zines says.

The IETF has received several keep-alive proposals, according to Robert Moskowitz, co-chair of the IETF's IPSec Workgroup, but none were discussed at the group's last meeting. Other issues, such as proper configuration of IPSec clients and network address translation, took precedence, he says.

Moskowitz also says there is no consensus within the group. "The answer is that we don't know the best way to do it."

Some vendors have built proprietary technologies to meet the need for a keep-alive feature. Intel gets around the problem by shipping its VPN gateways with IPSec software and Shiva Smart Tunnel software, products Intel acquired when it bought Shiva. Smart Tunnel includes keep-alive, according to Bob Lonadier, an Intel VPN product manager.

Nortel's Contivity gear uses information gathered via routing information protocol (RIP) to update which other Contivity boxes are still active. Compatible Systems' IntraPort devices ping each other.

Other vendors, such as TimeStep and 3Com, are waiting for a standard before incorporating a keep-alive feature.

Without the feature, different vendors' boxes can still establish encrypted sessions over an IP backbone and transfer data. But if one box goes down and loses track of established tunnels, it is cumbersome to establish new ones.

"That was one of the biggest problems we had in our interoperability tests," says Joel Snyder, a senior partner at Opus One, a Tucson, Ariz., consulting group. Snyder helped run VPN interoperability tests in May at NetWorld+Interop '99 in Las Vegas.

If there is no other mechanism, the sending equipment would eventually find out the receiving device had failed, but that could take hours. At a preset interval, IPSec gear switches the key it uses to encrypt data. When no key exchange information is forthcoming from the box at the other end, the sending box would know the gear was no longer up and running (see diagram).

The failed tunnel server might have come back up in the meantime, in which case a new tunnel would be set up. But data that was sent after the first tunnel failed would be lost and have to be resent.

Such potentially long outages are of particular concern to VPN service providers, according to TimeStep's Roy Pereira, a senior product manager. Without quick notification of a failure, service providers will have trouble maintaining network quality they have promised to customers in service-level agreements.

"They really need to know if something is up or down. They are religious about reliability," Pereira says. ◼

What we have here is a failure to communicate

Interoperability of virtual private network gear is hindered because currently there are only proprietary ways for VPN boxes to let each other know they are still alive.

❶ One tunnel server in a VPN network fails.

❷ Other servers that have established connections to the downed server keep sending data.

❸ Only when a server tries and fails to switch encryption keys with the downed server does it learn about the failure.

Cisco unveils packet telephony gear

3660 router, digital T-1 cards help users merge voice, data nets.

BY JIM DUFFY

SAN JOSE — Cisco's new packetized telephony products are designed to let users migrate to a single integrated data, voice and video network.

Cisco last week announced five products intended to help users benefit from the reduced costs, improved network efficiency and multimedia business applications converged networks promise. The products include:

● A digital T-1/E-1 High-Capacity Voice Port Adapter for Cisco 7200 and 7500 routers.

● A digital T-1/E-1 Packet Voice Trunk Network Module for Cisco 2600 and 3600 routers.

● The Cisco 3660 multiservice router.

One user says the new offerings, particularly the 3660, will indeed help reduce equipment costs.

"It's exactly what we've been waiting for, kind of the piece we've been missing," says Bill Homa, chief information officer at Hannaford Bros. Co. of Scarborough, Maine, which operates 150 grocery stores on the East Coast and is running voice over its ATM data net-

Cisco's new 3660 router is designed to help users better integrate voice and data networks.

work. "The issue for us has been switching voice calls."

Until now, the company has had to install and program several Cisco MC 3810s and StrataCom BPX switches.

"The 3660 and the T-1 cards in it will eliminate all that," Homa says.

The only downside to Hannaford's plan is that the company will have to wait another month for Cisco to ship ATM modules for the 3660 so it can directly interface the ATM switches in its net, Homa says.

The 3660 is an eight-slot chassis with two fixed 10/100M bit/sec Ethernet ports. Six of the slots can be used to house network modules such as the new digital T-1/E-1 boards. The other two slots can support what Cisco calls Advanced Integration Modules for hardware acceleration and additional processing power.

Cisco's digital T-1/E-1 voice port adapter and network module products let users add higher-density voice to new and existing equipment. The products provide a range of density options: from two to 48 simultaneous voice calls on the 2600 series; two to 288 simultaneous voice calls on the 3600 series; and 48 to 720 simultaneous voice calls on the Cisco 7200/7500 series.

Cisco also announced a T-1/E-1 Multiflex Voice/WAN Interface Card (Multiflex VWIC) for Cisco 2600 and 3600 routers, and the Multimedia Conference Manager (MCM) H.323 Gatekeeper on Cisco 2600 and Cisco 7200 series routers.

The T-1/E-1 Multiflex VWIC card, as well as the digital T-1/E-1 adapters, support mixed environments of time-division multiplexer voice, voice over IP and voice over frame relay, Cisco says. The MCM H.323 Gatekeeper is implemented as a feature set in Cisco IOS software and provides management and quality of service for voice and video.
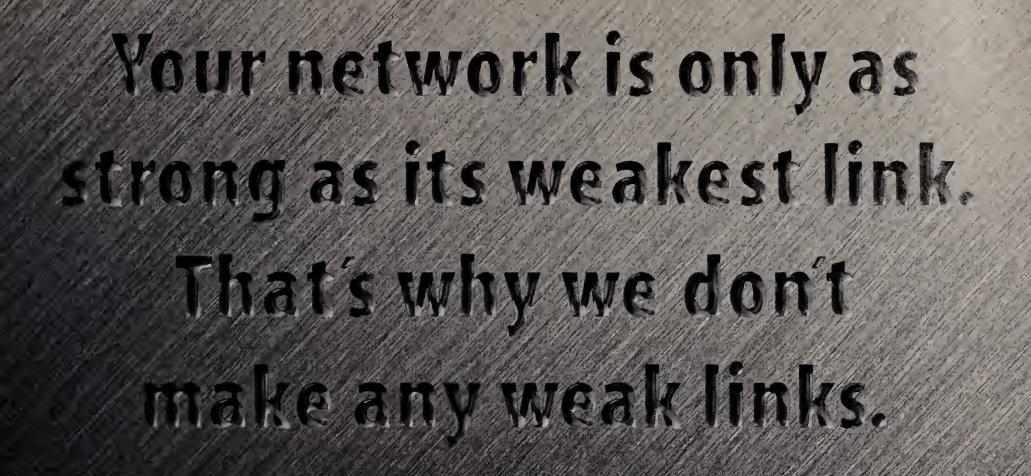
The Gatekeeper ensures that voice and videoconferencing connections receive priority over data traffic. The Gatekeeper also provides security for conferencing and voice-over-IP traffic, Cisco says.

The H.323 standard defines call signaling procedures and services available in desktops, servers and gateways in an IP voice infrastructure.

The new products will ship in August. The digital T-1/E-1 Voice Interfaces for the 7200/3600/2600 series range from $7,400 to $23,000. Entry-level pricing for the new 3660 Multiservice Platform is $10,700.

Pricing for T-1/E-1 Multiflex VWIC for the Cisco 2600/3600 series starts at $1,300.

Cisco: www.cisco.com. ◼

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Bitter pills are seen as good for ailing Compaq

Computer company reports dismal earnings, announces plans to lay off up to 8,000 workers.

BY DENI CONNOR

HOUSTON — Compaq appears to have gained the confidence of some Wall Street analysts with last week's announcement of additional layoffs, financial restructuring and plant closings designed to stem recent losses.

Newly named CEO Michael Capellas said in a press conference that the company will cut as many as 8,000 jobs, close and consolidate facilities, and take a $700 million to $900 million restructuring charge. The company had already planned to eliminate 1,750 jobs as a result of a previously announced restructuring of its acquired Digital operations.

"[Compaq's moves] set the stage for a fairly rapid recovery of momentum," says Stephen Dube, an analyst with Wasserstein Perella Securities in New York.

The company reported it lost $184 million in the second quarter, only slightly less than that expected by Wall Street analysts surveyed by FirstCall. Compaq blamed inadequate revenue growth, a decline in gross margins and an increase in operating expenses.

In the CEO's office for one week, Capellas says Compaq will take other actions to attempt to reverse its losses. The company will make additional investments in Tru64 Unix, drive its industry-standard ProLiant servers to higher levels of scalability and invest more in the development of Internet appliances. The company's future, according to Capellas, is in Internet and electronic commerce products and services, an environment he characterized as "nonstop."

Compaq expects conservative buying in the global enterprise in the fourth quarter,

attributable to Year 2000 worries. Capellas says that PC and e-commerce product demand will remain strong.

Compaq is also looking to increase its direct sales to global customers. Currently, 15% of global customer sales are direct. By year-end, Compaq expects that number to be 25% and eventually, 40%.

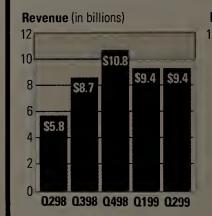Industry watchers expressed cautious support.

"Compaq can maintain or even increase market share if it presents a clear marketing message focused primarily on the set of strengths it can marshal for enterprise accounts," says Michael Kwatinetz, an analyst with CS First Boston in New York. "We expect the company to stress to clients innovations like its new eight-way servers, Internet caching appliances and lightweight notebooks."
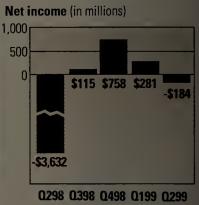
"Capellas appears to be a man of action," Dube says. "The company seems to be in the

mode of relatively rapid action, and Capellas fits that mode."

The company reported a 30% growth in second quarter server sales and a 40% growth in quarterly storage product sales year-over-year. Its Enterprise Solutions and Services

Group reported an 11% increase in quarterly revenue year-over-year.

"For the next few quarters, Compaq could show reasonable revenue growth coupled with improving operating margin," Kwatinetz adds. ◪

A tough job ahead

Only one week on the job and new Compaq CEO Michael Capellas is already fighting an uphill battle. The company announced $184 million in losses last quarter, its first quarter in the red since buying Digital one year ago.

Michael Capellas

Revenue (in billions)

Q0298	Q0398	Q0498	Q0199	Q0299
$5.8	$8.7	$10.8	$9.4	$9.4

Net income (in millions)

Q0298	Q0398	Q0498	Q0199	Q0299
-$3,632	$115	$758	$281	-$184

Investment firm puts money on single sign-on access

T. Rowe Price uses Dascom IntraVerse to control intranet and extranet access.

BY ELLEN MESSMER

BALTIMORE — With the spread of Web-based intranet applications for employees and extranet applications for customers, finding a simple means of authorization and access control for all these users has become problematic.

Instead of distributing multiple passwords to each person, the ideal would be to have just one password that would grant the individual access to all authorized applications after a one-time authentication. This has often been called the "Holy Grail" of security, and T. Rowe Price is proving you can reach it on a large scale for purposes of electronic commerce.

"On our intranet, we now have 4,500 users that have a single password for use

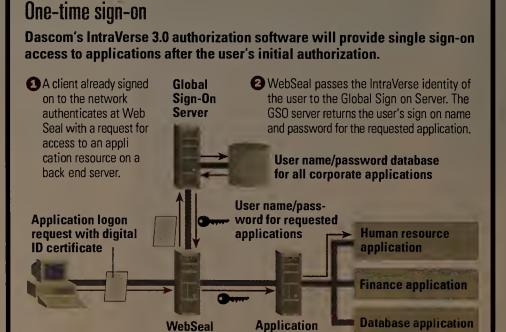with a lot of our applications, such as human resources," says Kirk Kness, assistant

vice president of application architecture. "They used to have to use a lot of passwords. But last fall we started retrofitting applications for what we call integrated sign-on, and we're building this into new applications, too."

T. Rowe Price has accomplished this using Dascom's IntraVerse server-based software. The product lets you set up a Web-based authorization proxy server called WebSeal at the Internet access point or within an intranet. After the user has authenticated once at this proxy, this information is sent to another server, called the Dascom Global Sign-On Server (GSO). The GSO controls user

One-time sign-on

Dascom's IntraVerse 3.0 authorization software will provide single sign-on access to applications after the user's initial authorization.

❶ A client already signed on to the network authenticates at Web Seal with a request for access to an application resource on a back end server.

Global Sign-On Server

❷ WebSeal passes the IntraVerse identity of the user to the Global Sign on Server. The GSO server returns the user's sign on name and password for the requested application.

User name/password database for all corporate applications

User name/password for requested applications

Application logon request with digital ID certificate

Human resource application

Finance application

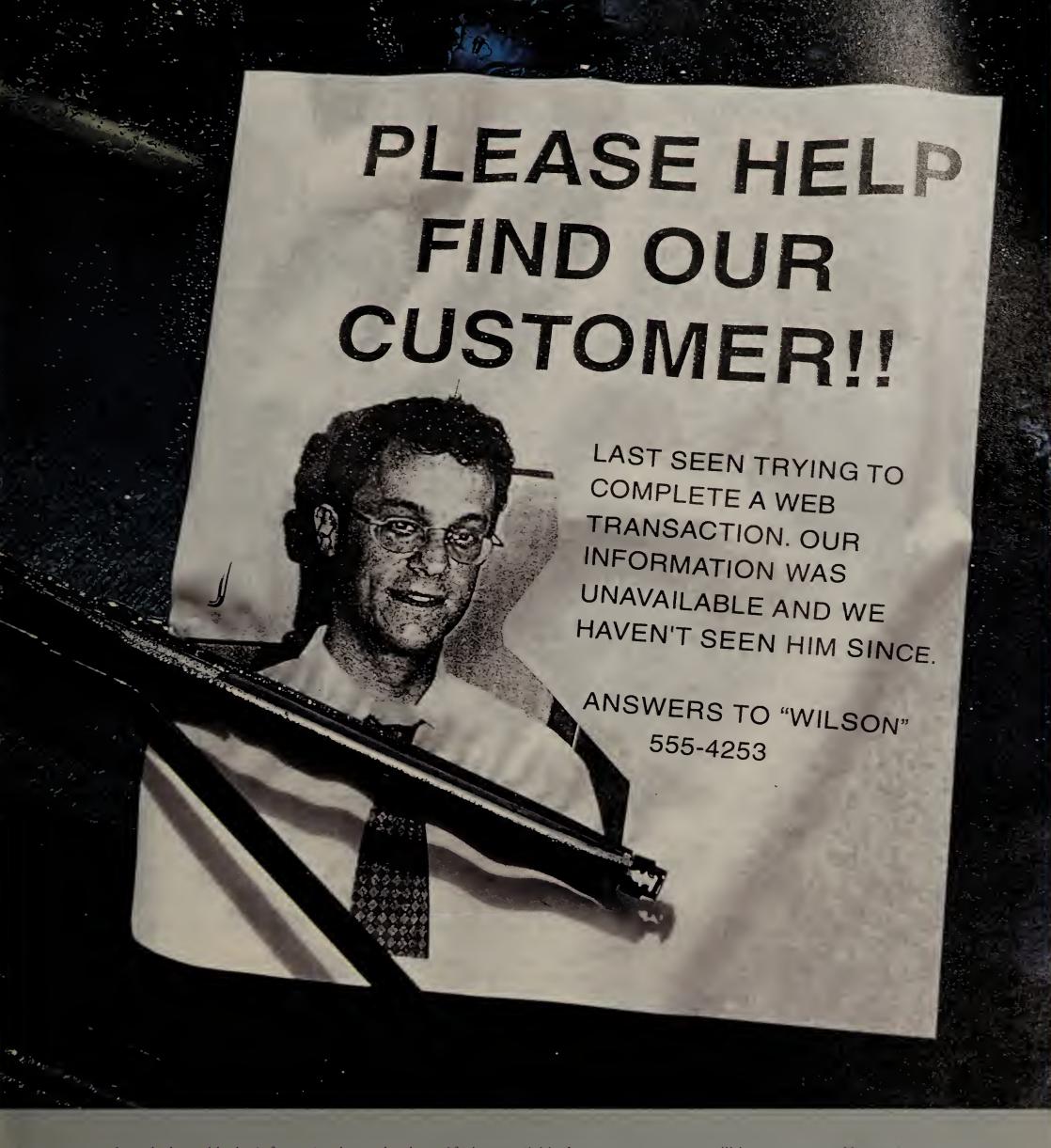**Database application**

WebSeal server

Application server

❸ The request is forwarded to the intranet application server for user access. The second application sign on is invisible to the user.

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AT&T wins cable battle, but war with RBOCs continues

RBOCs say their Internet and data lines should be completely deregulated, too.

BY DAVID ROHDE

WASHINGTON, D.C. — AT&T last week won a key battle in its all-fronts war to keep regulators from forcing open its cable network facilities to all ISPs.

But AT&T's rivals, the regional Bell operating companies, took advantage of AT&T's win to step up their own demands for deregulation of their data and Internet services so they, too, can become bigger Internet players.

In the cable arena, AT&T finally won the approval of the San Francisco Board of Supervisors for the transfer of its cable licenses from the former Tele-Communications, Inc. without an explicit open-access requirement. The board voted 9-2 in favor of the transfer, but said it would reconsider open access when

the license comes up for renewal under AT&T's name in December.

AT&T faces more such fights around the country after a judge in Portland, Ore., earlier this year upheld the right of local governments to place open-access rules on cable lines.

AT&T officials say the local fights are being stirred up by America Online, GTE and others with a larger goal in mind. "The effort that they're undertaking at the local level is really designed to put pressure on the Federal Communications Commission and Congress to change their position," says Jim Cicconi, AT&T's general counsel.

That kind of pressure was exactly what RBOC lobbyists also had in mind last week when they released a report claiming that 12 states lack "high-speed Internet access"

because of onerous rules on the Bells.

The report — from a group that calls itself the Internet Advancement Coalition, or iAdvance, but is primarily funded by SBC Communications and Bell Atlantic — says the solution for the "disconnected dozen" is to remove federal regulations preventing RBOCs from carrying data traffic beyond local calling boundaries.

Such a change would provide the incentive for RBOCs to build and host many more Internet exchange points, or "backbone hubs," just as non-Bell companies have done, according to the group's study.

Opponents of iAdvance, such as the big long-distance carriers and some competitive local exchange carriers, dismiss the study as a contrived attempt to put an academic gloss on a lobbying effort. They point out that most high-capacity Internet hand-off points are built by ISPs without regard to whether the facility is located in a Bell or non-Bell local calling territory.

The author of the study, telecom economist Erik Olbeter, concedes that two of the biggest factors in locating Internet hubs such as Network Access Points (NAP) and peering sites are population density and income levels. But even after

accounting for these factors, Olbeter says he found through statistical models that states whose territories are largely Bell-controlled are less likely to have nearby broadband hand-offs points than those with a lot of traditional non-Bell telephone companies (see graphic).

To tout the study, the iAdvance group held a press conference hosted by its hired lobbyists, former Clinton White House Press Secretary Mike McCurry and former Republican congresswoman Susan Molinari.

But the presentation seemed to get mired in confusion over the meaning of "disconnected" because the study claimed a lack of availability of backbone facilities, not access lines.

For example, an iAdvance written statement quoted author Olbeter as saying: "The vast majority of Americans in inner cities and rural areas simply do not have access to the high-speed Internet and are unable to reap the full benefits of the digital economy."

Olbeter later backed off that statement, telling *Network World*: "I don't know if it was me or [iAdvance's public relations representative] who put that in there." But he added that even broadband access facilities wouldn't be worth much if traffic got clogged at NAPs. ☑

The disconnected dozen

The iAdvance Coalition lists the following states as the "disconnected dozen" and claims they would have far more high-speed Internet exchange points if the Bell companies had data restrictions lifted:

State	Actual number of hubs*	Expected number of hubs if all lines were unregulated	State	Actual number of hubs*	Expected number of hubs if all lines were unregulated
Alabama	6	40	New Hampshire	3	42
Arkansas	2	28	North Dakota	0	24
Idaho	2	30	Oklahoma	7	33
Iowa	3	33	South Dakota	0	30
Maine	0	29	West Virginia	0	24
Montana	0	26	Wyoming	1	30

* Hub: An Internet traffic exchange point where one backbone provider has a T-3 or higher connection to at least two other providers.

SOURCE: ADVANCE COALITION, WASHINGTON, D.C.

White House plan for surveillance system draws fire

BY ELLEN MESSMER

WASHINGTON, D.C. — The White House wants the U.S. to build a nationwide intrusion-detection system to monitor government and private-sector networks.

The idea is that the system would automate response to net security attacks, but the proposal is garnering heavy fire from political opponents, civil liberties groups and industry representatives who think such a system would raise too many privacy issues and would be too expensive to implement.

According to the "National Plan for Information Systems Protection," a draft document from the National Security Council (NSC), President Clinton wants the government to install an integrated intrusion-detection system — called the Federal Intrusion Detection Network (FIDNET) — by 2003 on all government networks.

"The protection of our nation's vital computer-based systems must become a central part of the mission of our corporations and our government agencies. This effort will not be easy," Clinton says in the draft.

The 150-page FIDNET draft was leaked by government officials to the Washington, D.C.-based civil liberties group Center for Democracy and Technology (CDT), which last week posted much of the plan's content at www.cdt.org.

The draft also calls for "key corporations" in telecom, banking and energy to use the same kind of monitoring and reporting system so critical U.S. information systems will be protected as well.

Like Ronald Reagan's "Star Wars" missile defense program, the Clinton administration's network defense initiative would require untold amounts of money and would be based on untried technologies. The draft calls for the U.S. to pick a "best-of-breed" intrusion-detection system and have it widely deployed in four years, with the FBI as its main administrator.

> "The protection of our nation's vital computer-based systems must become a central part of the mission of our corporations and our government agencies. This effort will not be easy."

President Bill Clinton

Because FIDNET would be monitoring network traffic, this Big Brother aspect has incited fierce critics.

"This really changes the dynamic of how the government goes after criminals," says Ari Schwartz, policy analyst at the CDT. "Instead of just tracking down criminals based on their behavior, it tracks everyone."

While U.S. privacy laws are complex, Schwartz noted that the government can pretty much do what it wants if it invokes the specter of national security.

House Majority Leader Dick Armey (R-Texas) said he does not like the idea of what he called "a new Washington bureaucracy to protect the private sector from hackers and computer terrorists."

Measurement,
continued from page 1

Ganymede Software next week will embellish its Pegasus network monitoring product line by unveiling Pegasus Application Monitor, which will measure the performance of end users' transactions.
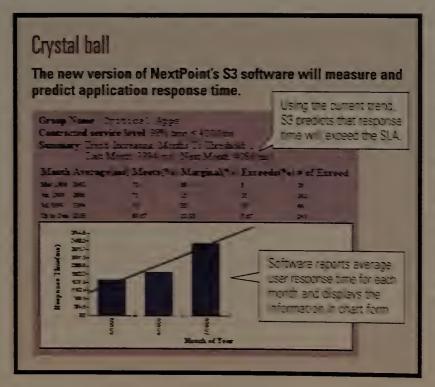
And Concord Communications in the next few weeks is expected to expand on its relationship with First-Sense Software and release a product that will collect performance data from end systems.

The software, called Pulse-Check, will be able to measure application response times and feed data into Concord's principal database, according to sources familiar with the company's plans. Concord declined to comment, except to deny that the product is called PulseCheck.

Getting feedback

These tools are critical for network managers trying to monitor end-user application experiences and maintain service levels.

"I'm constantly adjusting to improve the response time for end users, but I never see the response time," says Bob Brent, network services manager at Technicolor in Camarillo, Calif. Brent hopes to use NextPoint's new software to measure the response time of the company's AS/400 applications and to find out what kind of performance users are getting when they access Technicolor's forthcoming electronic commerce Web site.

Brent says he also hopes the software will help him troubleshoot performance problems — to determine if the problems are in a service provider's network, on his local network or in an application. "It will give me a clue about where to look in the process," he says.

Riding a trend

The upcoming announcements continue a trend among vendors to unite network and application performance management in one place, putting together different pieces of the puzzle, says Richard Ptak, vice president of systems and application management at Hurwitz Group in Framingham, Mass.

But application performance management is a new field and the management applications are still rather immature. Cheng Hseih, network manager at Hoffman-LaRouche, has been using application monitoring software from International Network Services for about a year. Though he finds the software helpful for ensuring adequate user response time, Hseih notes that building a profile for each application to be monitored is "a slow process."

The software has to be told what applications to watch and what baseline transactions should look like. If the software uses an API, such as Application Response Measurement, calls to that interface need to be written into the enterprise applications being monitored.

Technicolor's Brent agrees that some parts of setting up these systems can be time-consuming, but he adds that the investment pays off. "It's a lot of work to get there, but once you do, you can track down problems in 2 minutes instead of two hours," he says.

NextPoint's next point

Version 2.0 of NextPoint's S3 software will be able to monitor more applications and correlate data concerning application performance with data about network performance. The new version "helps pinpoint performance issues and gives direction as to whether they are in the application or in the network," says Bill Maro, president and CEO of NextPoint.

Previously, the software was preconfigured to monitor Web, e-mail and Domain Name System applications, now it can watch any application traffic specified by network managers.

The software contains a new module, called Predictive Analyst, which examines performance data over time and predicts future performance. For example, if response time is increasing a certain amount each month, the software can show what the future response time will be if the trend continues. This allows network managers to see when performance might degrade to a point that no longer meets service-level agreements (SLA), Maro says.

S3 2.0 will ship next week starting at $12,000 for the server software, which runs on Windows NT.

NextPoint: www.nextpoint.com; Ganymede: www.ganymede.com; Concord: www.concord.com

Crystal ball

The new version of NextPoint's S3 software will measure and predict application response time.

Price,

access to resources on the intranet based on a directory of users and privileges.

The Dascom tool kit lets you retrofit existing Web applications for single sign-on. Kness says his team found this is easiest when the application is written in an object-oriented style, such as Java, C++, Common Object Request Broker Architecture or Distributed Component Object Model.

"With object-oriented technologies, you just have a clearer framework to see where you add security services," he says. "Some are actually easy to retrofit."

The third version of Dascom's IntraVerse will debut in October. The upgrade's technical foundation will shift from the Distributed Computing Environment (DCE) model to one based on the Lightweight Directory Access Protocol and a set of access-control services called the Authorization APIs. According to Dascom, Intraverse 3.0 will scale up to 20 million users, as opposed to a few hundred thousand for DCE.

In March, Dascom submitted the Authorization APIs to a standards body called The Open Group. There the Authorization APIs have been backed as a proposed access-control standard by group members J.P. Morgan, The Boeing Co., Hewlett-Packard and IBM, among others.

This week, The Open Group appears poised to approve this set of access-control APIs in a final ballot. Using the Authorization APIs, application servers will be able to perform access control, user entitlements, data classification and data labeling in a more uniform way.

This way, corporations would have a common means to define trust relationships when crossing the threshold of another corporation's networks, whether authentication is based on passwords, digital certificates or other means.

T. Rowe Price now has about 10 intranet applications enabled for single sign-on by internal employees or international fund managers. Kness says it will use the next version of IntraVerse this fall to add single sign-on for use at the troweprice.com business portal.

There, customers gain access to information about mutual funds, IRA accounts, brokerage and workplace retirement services.

"This time next year we'll be in the millions in terms of integrated sign-on for our retail customers," Kness claims. "They won't have to have multiple passwords." ◪
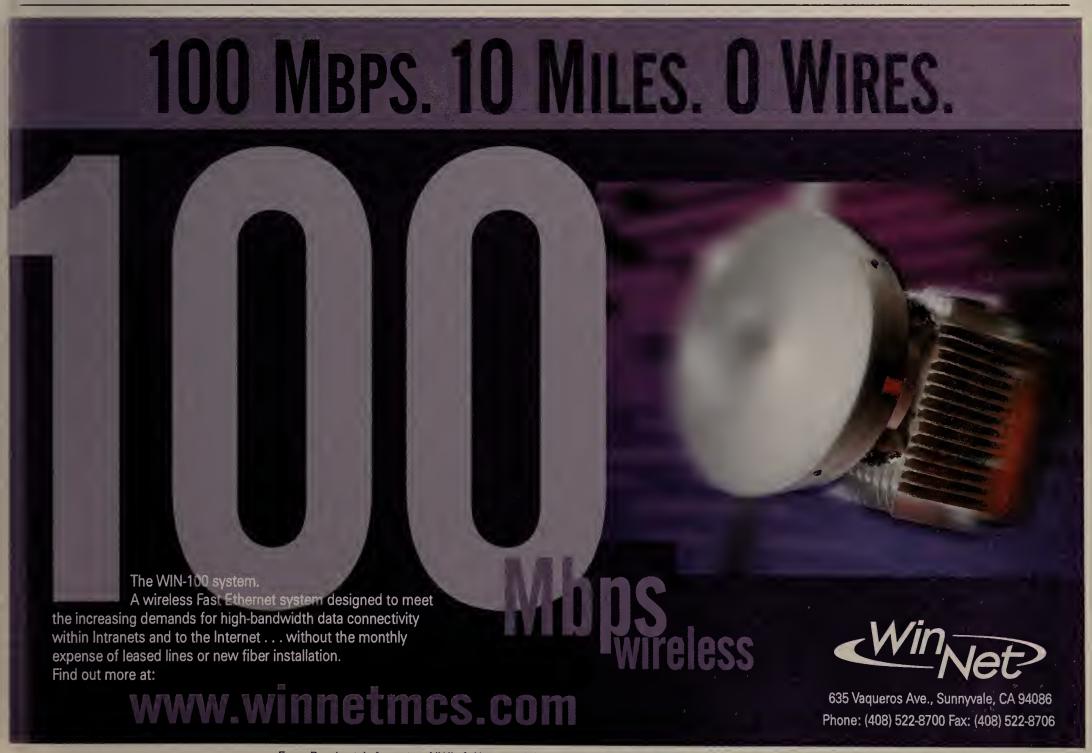
Security,

"[The administration's] plan raises the Orwellian possibility that unscrupulous government bureaucrats could one day use such a system to read our personal e-mail," Armey stated. He said use of strong encryption offers a way to protect information assets. He urged the Clinton administration to fully disclose what the intrusion-detection system will do before building anything.

Americans for Computer Privacy (ACP), a group of about 100 companies and 40 trade associations that lobbies to lift encryption export rules, strongly condemned the FID-NET proposal.

"Like the third-party key-recovery plan advocated by the FBI, this Big Brother approach to dealing with the technological realities of the 21st century is an affront to the constitutional rights of law-abiding citizens," claims Ed Gillespie, ACP executive director.

Among others weighing in with an opinion were Sens. Conrad Burns (R-Mont.) and Ron Wyden (D-Ore.), who crossed party lines to condemn the White House draft plan. In a joint statement they said: "We are particularly concerned that this sweeping monitoring system could have access to all conceivable varieties of electronic communications, including e-mails, remote log-ins and computer programs."

In spite of the fact that the draft plan already has a "Message from the President" with a statement attributed to Bill Clinton on it, National Security Advisor Sandy Berger last week said it hasn't officially been sent to the president. But the NSC anticipates such a plan will be officially unveiled around September or October. ◪

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Clients, Servers, Operating Systems, VPNs, Networked Storage**

IBM makes enterprise storage bid

BY MARC SONGINI

NEW YORK — IBM last week launched a fresh assault on the enterprise storage market by announcing a product that observers say stands out because of its aggressive price and huge capacity.

The company largely ceded the high-end disk array server market to storage industry leader EMC several years ago and has been reselling products made by Storage Technology ever since. But with its new Enterprise Storage Server, code-named Shark, IBM is looking to take a big bite out of EMC's business.

IBM is recommitting to the enterprise storage market in anticipation of the business taking off as companies move ahead with aggressive e-business plans, says Ron Kilpatrick, general manager of IBM's storage division. E-business applications will generate a lot of customer, inventory and other data that needs to be stored efficiently and retrieved easily, he says.

IBM's new product is designed so storage capacity can be added as needed up to 11.2 terabytes. Enterprise Storage Server, based on multiple Reduced Instruction Set Computing processors, will handle storage chores for S/390 mainframes and AS/400 midrange computers, as well as for Unix and Windows NT machines. The IBM product will support multiple interfaces, including Enterprise Systems Connection and Ultra SCSI.

And what will one of these IBM servers cost? About $3 million. That may sound like a lot, but analysts say a high-end EMC Symmetrix box will typically cost twice as much.

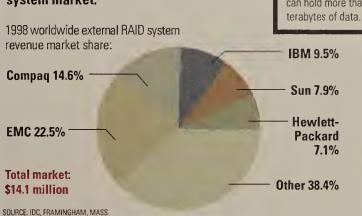EMC doesn't seem too concerned, noting that IBM's product still won't be available for awhile and claiming that the product lacks key features, such as native Fibre Channel connectivity. "We prefer to compete with real products," an EMC official says. "This is based on hype."

Meanwhile, IBM has ticked off partner StorageTek. The new IBM product replaces IBM's RAMAC Virtual Array, which is licensed from StorageTek. StorageTek says the move will hurt IBM in that IBM will no longer be able to offer StorageTek's virtual storage technology and will not have its own version of virtual storage technology ready until next year. Among other things, virtual storage technology optimizes the use of space on storage disks.

But even without virtual storage from the start, IBM's product should attract customer interest, says Mike Kahn, an analyst at the Clipper Group, a Wellesley, Mass., consulting firm. "The bottom line is: IBM will do whatever it takes in a fiercely competitive market," he says. ◼

A new shark in the storage waters

IBM hopes its Enterprise Storage Server — code-named Shark — will give the company a stronger presence in the external RAID system market.

IBM's new storage server can hold more than 11 terabytes of data.

1998 worldwide external RAID system revenue market share:

- IBM 9.5%
- Sun 7.9%
- Hewlett-Packard 7.1%
- Other 38.4%
- Compaq 14.6%
- EMC 22.5%

Total market: $14.1 million

SOURCE: IDC, FRAMINGHAM, MASS.

Winternals sending relief to server crash sites

Remote recovery tool lets network administrators revive downed Windows NT machines.

BY JOHN FONTANA

AUSTIN, TEXAS — With server crashes achieving occupational hazard status, utility vendor Winternals Software has come up with a recovery utility for administering to ill Windows NT machines.

The company has begun shipping Remote Recover, which lets administrators repair NT File System (NTFS)-based systems throughout a network from another NT machine that functions as a host. Remote Recover allows the host machine to take over a downed server and bring it back up.

The utility uses TCP/IP to create a connection between the host and a crashed server after the server has been booted from an MS-DOS floppy disk. Once the connection is made, Remote Recover lets administrators virtually mount NTFS and File Allocation Table (FAT) drives from the crashed server onto the host machine.

The mounted disks appear to be local to the host machine, and an administrator can repair the server operating system and recover files.

"Any tool that can be used on the host machine can be used on the remote machine," says Bryce Cogswell, chief technology officer of Winternals and co-creator of the product. Remote Recover allows hard-disk administration software, which typically runs only on a local NT system, to execute over the network — even on a server that no longer has a functioning operating system installed.

Administrators can edit, copy and delete files; copy files or partitions among all the machines on a network; partition and format disks as either NTFS or FAT; and restore files or entire disks from tape backup.

Microsoft includes an Emergency Repair Disk in its NT Resource Kit, but this tool does not let administrators troubleshoot.

Remote Recover runs on NT 4.0 and requires a copy of MS-DOS 4.0 or higher booted to the crashed server. The software is priced at $300 and is available for download from www.winternals.com. ◼

IN-SITE: *Lessons from Leading Users*

Widener University has the urge to converge

BY JIM DUFFY

Voice/data convergence is being tested at Widener University in an ambitious project designed to meld several disparate, application-specific networks into one.

Currently installed at the university is a voice-over-ATM net that saves the institution at least $10,000 per month in circuit and long-distance charges. Widener also supports distance learning by "Webcasting" classes across campus. If students cannot make it to class, they can tune-in to a live multicast or view a recorded session through their Web browser.

But Widener has even bigger plans for its convergence project. The school is currently in the initial stages of overlaying Ethernet- and IP-based voice and videoconferencing on its ATM net. And some other smaller, specialized networks, such as the university's security system, are also now running over the packet- and cell-based data network.

"Convergence is bigger than voice, video and data," says Gary Habermann, Widener's director of network operations. "There are a lot of oddball little networks out there."

Indeed there are, and if Habermann has his way, they'll all be swallowed up by Widener's data network, which features ATM in the core and Ethernet at the edge. Voice has already been swallowed up.

Widener has replaced four to six leased T-1 circuits by connecting two AT&T PBXs to the ATM network, which supports circuit emulation. That combination gives Widener free long-distance

calling between its Chester, Pa., and Delaware campuses, but the real savings — the $10,000 per month — comes from eliminating those T-1s, Habermann says.

"It's a lot of money," he says. "It's a good way to win friends in the administration."

Another administration-friendly application is Webcasting. Video cameras in classrooms record the classes, which can be virtually attended by students via live or recorded multicast to their Web clients.

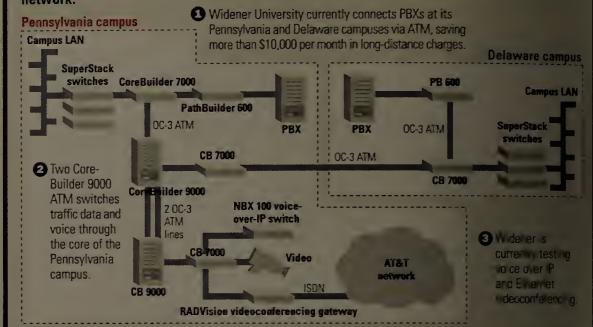Multicasting entire classes may seem like a waste of bandwidth, but a single multicast to 500 students only takes up 700K bit/sec of bandwidth, Habermann says.

Widener has some other convergence goodies cooking in its lab. The school is testing videoconferencing over Ethernet using Polycom videoconferencing gear and an H.323-to-ISDN gateway from RADVision.

H.323 is a standard for multimedia over frame- and packet-based networks. Widener's videoconferencing trial is evaluating classroom-to-classroom and campus-to-campus videoconferencing at 384K bit/sec over

ISDN WAN circuits.

Voice-over-IP has just graduated from the lab. The school is beginning to utilize some IP phones based on 3Com's NBX 100 voice-over-IP switch. Widener wants 21 members of its technical staff to be using the IP phones by the end of the summer, Habermann says.

Each NBX switch supports 140 phones and is connected to Widener's data net via 10M bit/sec Ethernet. The NBX switches are also connected to Widener's PBXs via two plain old telephone service (POTS) lines.

Each voice-over-IP phone requires a

200K bit/sec connection for "voice quality," and users can have voice mail and conferencing features for a fraction of the cost of a circuit-switched offering, Habermann says. For instance, a POTS handset costs Widener $1,500, vs. an NBX handset for $350. Upgrading a 64-phone PBX costs $200,000, vs. $42,000 for a 64-phone NBX upgrade, Habermann says.

Still, voice over IP has some maturing to do.

"It will be a while before we get rid of the PBX, but we won't grow it anymore," Habermann says. ■

Convergence urges

Widener University is melding voice, video and data on its 3Com-centric ATM and Ethernet network.

Pennsylvania campus

❶ Widener University currently connects PBXs at its Pennsylvania and Delaware campuses via ATM, saving more than $10,000 per month in long-distance charges.

Campus LAN — SuperStack switches — CoreBuilder 7000 — PathBuilder 600 — OC-3 ATM — PBX

Delaware campus

PB 600 — Campus LAN — SuperStack switches — PBX — OC-3 ATM — CB 7000 — OC-3 ATM — CB 7000

❷ Two CoreBuilder 9000 ATM switches traffic data and voice through the core of the Pennsylvania campus.

CoreBuilder 9000 — 2 OC-3 ATM lines — NBX 100 voice-over-IP switch — CB 7000 — Video — AT&T network — ISDN — CB 9000 — RADVision videoconferencing gateway

❸ Widener is currently testing voice over IP and Ethernet videoconferencing.

SGI makes foray into Intel server market

Company adds Linux and Windows NT servers to its product mix.

BY DENI CONNOR

MOUNTAIN VIEW, CALIF. — SGI, formerly Silicon Graphics, this week will introduce its first Intel-based servers, a move designed to keep the company's customers from going elsewhere to buy lower-end machines.

The company is best known for its powerful Origin 2000 Unix servers and supercomputers, which are used largely in technical comput-

ing environments. SGI is used to its customers buying lower-end machines from other vendors. But with the new 32-bit Intel-based servers, which run Windows NT or Linux, SGI can offer customers a wider range of network servers.

SGI has no illusions about making a huge splash in the Intel server market with its new 1400 series machines, though the company does think customers will find its

new machines attractive as Web servers and proxy servers.

The company isn't claiming that its Intel servers are technically very different from competing machines.

However, SGI has priced the servers competitively at roughly $13,600 for a machine with four Pentium III Xeon processors, 512M bytes of cache, 256M bytes of RAM and a 9G-byte disk.

SGI plans to introduce two-

and eight-processor models over the next 12 months.

Customers seem intrigued by the new products, particularly the Linux machine.

"As a Linux environment, we are very interested in SGI low-cost Linux machines," says Don Holmgren, a computer professional at Fermi Lab, a Department of Energy facility in Batavia, Ill., that has beta-tested the new SGI Linux server.

"SGI has made a bigger commitment to Linux than other vendors," Holmgren says.

SGI's new 1400 server line comes in Linux and NT versions.

The new Linux machine should also jump-start a broader Linux effort at SGI, says David Witzel, an analyst with D.H. Brown in Port Chester, N.Y.

He says the new Linux server will give it the Linux knowledge it will need to get an integrated version of Linux and SGI's IRIX operating system running on Intel's 64-bit Merced processor when it arrives next year.

SGI: www.sgi.com

Wired Windows
Dave Kearns

WHICH PORT
IN THIS STORM?

Novell recently announced availability of its Single Sign-on — a directory-based package that eliminates the need for users to remember multiple passwords. The software lets them log on to the computer network once and access a variety of applications across multiple platforms. Alongside Novell's announcement was one from Lotus declaring support for Single Sign-on for its Domino servers and Notes client.

This reminded me of the brouhaha surrounding the announcement that Lotus' newest release of Domino, 5.0, would not be available on the NetWare platform. Trying to get to the bottom of the decision led to an exercise in semantics.

Here's what happened: A user, trying to find out if Release 5.0 would ship for NetWare, called his service provider. The service representative checked with Lotus and called back a couple days later to report that "Novell would not allow Domino access to a required port for the Domino server." "Port" in this case is understood to be a particular IP socket, which, when combined with a network address, is called a port.

The user found this hard to believe. Release 4.0 had run on NetWare, and he couldn't believe Lotus had changed the port numbers the company was using for access. Nor could he believe that NetWare suddenly required Lotus' port number for some other activity; port numbers can be virtually anything, as long as the client and server agree on them.

Not content with the answer, the user contacted IBM, Lotus' parent company. IBM said "the NetWare platform doesn't allow access to a particular I/O port on the system." So the problem was with an I/O port (part of the system BIOS) rather than an IP port (a socket number).

Well, which was it? Neither made much sense.

A call to Novell — to someone familiar with the situation — revealed that the real reason for the confusion was that IBM wanted Novell to rewrite the programming code as a NetWare Loadable Module for free. It wasn't that Novell was blocking a "port" (socket), or that NetWare didn't allow access to a "port" (I/O buffer), but that IBM wanted Novell to "port" (rewrite the program) Release 5.0, gratis! That's a big difference.

People who heard only the first or second explanation would be mightily miffed at Novell for what's perceived to be a dumb move — blocking the release of Domino 5.0 for NetWare. People who dug deeper into the controversy, though, know where to point the finger. And it all hinged on the meaning of one word.

Get Kearns' free Windows NT newsletter via e-mail twice a week. Go to www.nwfusion.com/focus/index.html and sign up for the latest NT news.

Tip of The Week

If you're not conversant with XML, you'd better get a good book and start reading. Microsoft and Novell have agreed that XML will be the basis of Directory Services Markup Language, the language that will be used by directory systems to exchange information.

Briefs

GVN Technologies last week introduced D'Lite 440, a multi-service access platform that aggregates all voice and data traffic from a single site onto the same dedicated WAN link.

GVN's D'Lite 440 could save you money with SDSL.

D'Lite 440 can connect to T-1 or symmetric digital subscriber line (SDSL) WAN circuits. Analysts say competitive local exchange carriers could use the box to offer voice and data services over SDSL, a less expensive option than T-1 services from traditional carriers.

GVN: www.gvntech.com

—

A trade association of state telecom regulators is recommending that states not force any new hardware or software requirements on carriers until the Y2K problem has passed. The National Association of Regulatory Utility Commissioners passed the resolution at its summer meeting in San Francisco. The resolution even says states should forgive deadlines on current regulatory changes if carriers need to concentrate resources on Y2K.

—

Last week **iPass** guaranteed 100% availability for its Internet access dial-up network. IPass is a consortium of ISPs that lets each other's customers access their local points of presence so iPass customers can travel the world and access the 'Net via a local phone call.

The company also announced it is building a list of virtual private network gear that is compatible with iPass net security.

iPass: www.ipass.com

Enron building bandwidth the IP way

BY DENISE PAPPALARDO

PORTLAND, ORE. — When you hear the word "commodity," you probably think of pork bellies or orange juice. When executives at Enron Communications use that word, however, they are talking about bandwidth.

Enron Communications, a wholly owned subsidiary of energy company Enron Corp., is in the process of building a network that will span 15,000 route fiber miles. While the company is breaking ground and dropping its own fiber-optic cables, Enron is also swapping bandwidth with other providers, such as Frontier Communications, to get bandwidth turned on in areas where Enron has no coverage.

Enron isn't paying millions of dollars for this bandwidth. The company is instead trading some of its own network capacity. This is believed to be an economical way to get nationwide coverage up and running quickly, especially for new service providers. However, it remains to be seen whether this bandwidth swapping will lead to lower rates for business users or merely pad Enron's bottom line, says Lisa Pierce, an analyst with Giga Information Group in Cambridge, Mass.
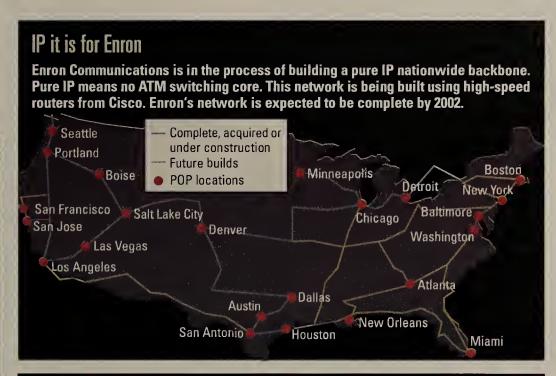
More clear is that bandwidth swapping will allow Enron by the end of 2000 to build a nationwide network that will be used to offer its application hosting services. Enron is already offering its ePowered Media Cast streaming video service. The service provider plans to add enterprise resource management and other applications specific to certain industries, says James Crowder, vice president of strategic development.

In order to subscribe to any of Enron's services, enterprise business users will have to buy them through ISPs that have teamed with Enron, such as USinternetworking. Enron expects to deal with several national and regional ISPs that will essentially wholesale application service provider services from Enron.

By year-end, the majority of network segments that are under construction will be up and running, except the one from Houston to New Orleans (see graphic). The majority of Enron's network is operating at OC-3 (155M bit/sec). The company is in the process of upgrading eight cities — Portland, San Jose, Los Angeles, Dallas, Houston, Chicago, New York and Washington — to OC-12 (622M bit/sec), to be completed by year-end.

Unlike other net newcomers, such as Qwest Communications and Level3 Communications, Enron isn't using transport technologies, such as ATM or frame relay, Crowder says. Enron is deploying IP over dense wave division multiplexing, which lets a service provider get 16 to 32 times more capacity out of each strand of fiber. In the short term, this means Enron will not be supporting any voice services because toll-quality voice cannot be supported over a nationwide network today. But Crowder says Enron and its customers will benefit from a pure IP backbone network in the long run. ∎

IP it is for Enron

Enron Communications is in the process of building a pure IP nationwide backbone. Pure IP means no ATM switching core. This network is being built using high-speed routers from Cisco. Enron's network is expected to be complete by 2002.

Legend:
— Complete, acquired or under construction
— Future builds
● POP locations

POP locations: Seattle, Portland, Boise, San Francisco, San Jose, Salt Lake City, Denver, Las Vegas, Los Angeles, Minneapolis, Chicago, Detroit, New York, Boston, Baltimore, Washington, Atlanta, Dallas, Austin, San Antonio, Houston, New Orleans, Miami

AOL deals give ADSL a boost

BY TIM GREENE

America Online is becoming a driving force behind the deployment of ADSL.

In separate agreements, AOL has recently committed to wholesaling asymmetric digital subscriber line from Ameritech and GTE for the purpose of reselling it packaged with Internet access.

The AOL deal with Ameritech is big enough to move Ameritech's DSL deployment from on-hold to active, with Ameritech promising to equip its switching offices in Illinois, Indiana, Michigan, Ohio and Wisconsin with ADSL gear.

Ameritech's ADSL business plan called for wholesaling the service, but the carrier first wanted to clear up regulatory concerns about leasing parts of its network to other carriers.
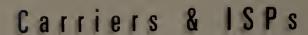
The AOL deal gave Ameritech a big enough wholesale customer to resolve those concerns.

The AOL-GTE deal will increase the visibility of ADSL in GTE's coverage region. GTE currently provides ADSL in parts of 17 states across the U.S., including Washington, Oregon, California, Florida, Hawaii and Texas.

Ameritech later this year will also wholesale cable modem service to AOL in Chicago for high-speed Internet access packages. Ameritech.net will sell cable modem Internet access over the same network, proving it is technically feasible for more than one company to sell cable modem service over the same network.

GTE: www.gte.com; AOL: www.aol.com; Ameritech: www.ameritech.com

Wan Monitor . Daniel Briere and Christine Heckart

Take a 30-day timeout or risk 'eBay black eye'

EBay's much-publicized multiday system crash and service outage continues to cause sleepless nights for many individuals . . . not all of whom work for eBay.

IT executives and electronic commerce managers throughout the Internet community are constantly wondering whether their e-commerce platforms could crash and tag them with an "eBay black eye." Funny thing is, most of these executives already know what needs to be done.

If they really want to sleep at night those responsible for strategic e-commerce platforms should implement the same operating procedures, system requirements, backup plans and network policies that exist for their internal mission-critical systems.

Reading through the press surrounding the eBay system crash, two obvious problems stand out. The first was the lack of a hot standby swap-over system. The second was that eBay servers had not been updated to the most recent version of the Sun operating system.

Quotes from eBay technical people indicate the standby system was almost ready but not quite functional. Still, they pressed on with massive system changes and nothing more than a few backup tapes standing between them and disaster. As weary and worn individuals responsible for strategic enterprise networks, we all understand the importance of hot-swappable standby systems. All too often though, those controlling the dollars do not share that level of concern.

Some believe the Internet is "all new and different" and runs by a separate set of more lenient rules and on a different time clock. We don't buy that premise. If anything, executives should use the eBay crash and publicity it generated to slow down, even if temporarily, their e-commerce system upgrades. Demand the money and resources to deploy a hot standby system and stick to your guns.

Using scare tactics to get resources should not be standard procedure, of course. Fortunately, the wave of press coverage concerning the eBay outage makes our suggestion seem less like a scare tactic and more like good business sense. Make certain your CEO and board members see the stories concerning what eBay lost in hard dollars, stock value and customer loyalty.

While you have their attention, push for commitments and resources to implement a plan that includes delaying all new system enhancements in order to spend 30 days on a full e-commerce system review. During this time you can ensure your e-commerce security is as bulletproof as it can be, your server operating systems are up to the correct version levels, patches have been tested and rolled out, backup plans have been tested and the hot standby systems work. You can also use these 30 days to promote your system review to your e-commerce customers.

You have two choices. Strike while the embers of the eBay crash are hot or continue to down those sleeping pills.

Briere is president and Heckart is vice president of TeleChoice, a consultancy in Boston. They can be reached at dbriere@telechoice.com and checkart@telechoice.com.

Whoever called the unknown "great" never managed a corporate network.

`2:59am`

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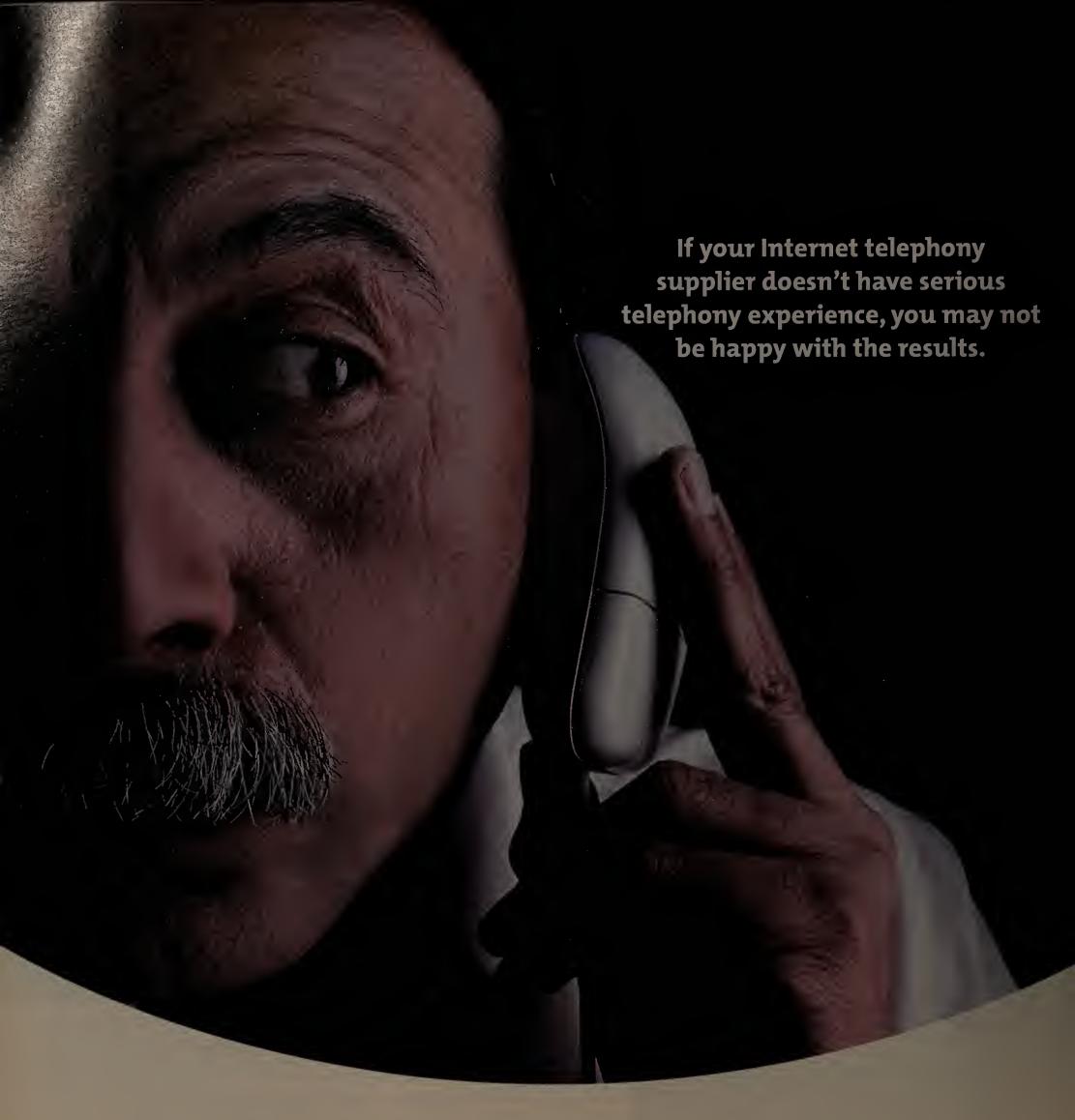
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1. What is the principal business activity at your location? (check ONE only)

01. ☐ Manufacturing (other)
02. ☐ Finance/Banking
03. ☐ Insurance/Real Estate/Legal
04. ☐ Health Care Services
05. ☐ Hospitality/Entertainment/Recreation
06. ☐ Media/TV/Cable/Radio/Print
07. ☐ Retail/Wholesale Trade/Business Services
08. ☐ Transportation
09. ☐ Utilities/Process Industries (Mining/Construction/Petroleum Refining/Agriculture/Forestry)
10. ☐ Education
11. ☐ Government
12. ☐ Military
13. ☐ Aerospace
14. ☐ Consulting (Independent) *
15. ☐ Carriers/Service Providers
16. ☐ Internet Service Provider (ISP)
17. ☐ Manufacturing (Computer/Communications/OEM)
18. ☐ Resellers of Computer/Network Products (VARs,VADs)*
19. ☐ Systems/Network Integrators*
20. ☐ Distributors (Computer/Communications)*
21. ☐ Other (please specify)

*Attn Consultants, Integrators, Distributors, Resellers: Please complete entire form based on ALL clients and your own business needs

2. P: What is your primary job function? (check ONE only)
S: What is your secondary job function? (check ALL that apply)

P S
1. ☐ Network Management
2. ☐ LAN Management
3. ☐ Datacom/Telecom Management
4. ☐ IS/IT/MIS/CIO/CTO/Systems Management

P S
5. ☐ Internet/Intranet/E-Commerce Mgmt, Webmaster
6. ☐ Engineering Management

P S
7. ☐ Corporate Management (CEO, COO, CFO, Pres., VP, Dir., Mgr.)
8. ☐ Consultant (Independent)
9. ☐ Other (please specify)

3. What is the estimated value of Network equipment and services that you specify, recommend or approve the purchase of? (Please print the appropriate number code on the line next to each product category. Please complete ALL categories A-N.)

1. $100 Million or more
2. $50 Million to $99.9 Million
3. $25 Million to $49.9 Million
4. $10 Million to $24.9 Million
5. $1 Million to $9.9 Million
6. $100,000 to $999,999
7. $50,000 to $99,999
8. Under $50,000
9. None of the above

A _____ Large Systems (Mainframes/Minis)
B _____ Desktops (Micros/Laptops/Workstations/PDAs)
C _____ Servers
D _____ LANs
E _____ WAN Equipment
F _____ Carrier Services
G _____ Internetworking
H _____ Internet
I _____ Intranet E-Commerce
J _____ Extranet/Ecommerce
K _____ Remote Access
L _____ Peripherals (including storage)
M _____ Software
N _____ Service/Support

4. What is the total number of sites for which you have purchase influence? (check ONE only)

1. ☐ 100+   2. ☐ 50 – 99   3. ☐ 20 – 49   4. ☐ 10 – 19   5. ☐ 2 – 9   6. ☐ 1   7. ☐ None

5. What is the total number of Servers/Clients/LANs installed/planned at your location/in your entire organization? (check ONE box in each column)

	SERVERS			CLIENTS			LANS	
	At Location A	Entire Org. B		At Location C	Entire Org. D		At Location E	Entire Org. F
1. 50,000+	☐	☐	1. 50,000+	☐	☐	1. 50,000+	☐	☐
2. 10,000 to 49,999	☐	☐	2. 10,000 to 49,999	☐	☐	2. 10,000 to 49,999	☐	☐
3. 1,000 to 9,999	☐	☐	3. 1,000 to 9,999	☐	☐	3. 1,000 to 9,999	☐	☐
4. 100 to 999	☐	☐	4. 100 to 999	☐	☐	4. 100 to 999	☐	☐
5. 50 to 99	☐	☐	5. 50 to 99	☐	☐	5. 50 to 99	☐	☐
6. 10 to 49	☐	☐	6. 10 to 49	☐	☐	6. 10 to 49	☐	☐
7. 1 to 9	☐	☐	7. 1 to 9	☐	☐	7. 1 to 9	☐	☐
8. none	☐	☐	8. none	☐	☐	8. none	☐	☐

6. What is your scope and involvement in purchasing decisions for network products and services for your enterprise?

A. Scope (check ONE only)
CORPORATE:
1. ☐ Entire Enterprise/Multiple Enterprises
2. ☐ Division/Multiple Divisions
3. ☐ Department
4. ☐ None

B. Involvement (check ALL that apply)
1. ☐ Create Network/IT Strategy
2. ☐ Recommend/Specify Brand
3. ☐ Approve Purchase
4. ☐ Evaluate Products/Services
5. ☐ Determine the Need
6. ☐ None

7. What is the estimated number of employees at your location/in entire organization? (check ONE in each section)

A. At your location:
1. ☐ Over 20,000
2. ☐ 10,000 – 19,999
3. ☐ 5,000 – 9,999
4. ☐ 2,500 – 4,999
5. ☐ 1,000 – 2,499
6. ☐ 500 – 999
7. ☐ 250 – 499
8. ☐ 100 – 249
9. ☐ 99 or less

B. Entire organization:
1. ☐ Over 20,000
2. ☐ 10,000 – 19,999
3. ☐ 5,000 – 9,999
4. ☐ 2,500 – 4,999
5. ☐ 1,000 – 2,499
6. ☐ 500 – 999
7. ☐ 499 or less

8. Please indicate the Internet/Intranet/LAN/WAN products/services that you are currently involved in purchasing or plan to purchase (check ALL that apply)
A. Currently involved in purchasing   B. Plan to purchase

INTERNET/INTRANET
A B
01. ☐ VPN Equipment
02. ☐ VPN Services
03. ☐ Firewalls/Security/Encryption
04. ☐ Electronic Commerce
05. ☐ Web Servers/Software
06. ☐ Web Enabled Call Center Tools
07. ☐ Voice/Video Over IP (IP Multicast Routing)
08. ☐ Internet Services
09. ☐ Web Hosting
10. ☐ Host Access
11. ☐ Web Development Tools
12. ☐ Management/Monitoring Software
13. ☐ Web Based Management Tools
14. ☐ Web Based Collaboration/Groupware
15. ☐ Caching/Load Balancing Products
16. ☐ Other Internet/Intranet

LOCAL-AREA NETWORKS/INTERNETWORKING
A B
17. ☐ Local-Area Networks
18. ☐ Network Operating System Software (NOS)
19. ☐ Intel Based Servers
20. ☐ Intel Based Multiprocessor Servers
21. ☐ RISC Based Servers
22. ☐ Clustered Servers
23. ☐ Print Servers
24. ☐ Routers
25. ☐ Layer 2 Switches
26. ☐ Layer 3 Switches
27. ☐ Layer 4 Switches
28. ☐ ATM Switches
29. ☐ Token-Ring Switches
30. ☐ Network Storage (NAS, SANs)
31. ☐ Storage/Backup (Optical, Disk, Tape, RAID)
32. ☐ Network Test/Diagnostic Tools
33. ☐ UPS
34. ☐ Network Interface Cards (NICs,PCMCIA)
35. ☐ Hubs/Intelligent Hubs/Stackable Hubs
36. ☐ Cables,Connectors, Baluns
37. ☐ SNMP Platform
38. ☐ Management Frameworks
39. ☐ Other LAN/Internetworking

WAN EQUIPMENT & SERVICES
A B
40. ☐ Modems
41. ☐ Cable Modems
42. ☐ Asynchronous Transfer Mode (ATM)
43. ☐ Frame Relay Equipment Including FRADS
44. ☐ Frame Relay Services
45. ☐ Remote Access Products
46. ☐ Remote Access Services
47. ☐ Wireless Data Equipment/Services
48. ☐ ISDN Equipment/Services
49. ☐ FT-1/T-1/T-3 Services
50. ☐ xDSL Services/Products
51. ☐ Diagnostic/Test Equipment
52. ☐ DSU/CSU
53. ☐ PBXs
54. ☐ Videoconferencing
55. ☐ Managed LAN/Router Services
56. ☐ Fax Servers/Services
57. ☐ Other WAN Equipment/Services
None of the above (1 - 57)   58. ☐

9. Please indicate the Network hardware/software/services that you are currently involved in purchasing or plan to purchase: (check ALL that apply)
A. Currently involved in purchasing   B. Plan to purchase

COMPUTERS/PERIPHERALS
A B
01. ☐ Laptops/Notebooks/PDAs
02. ☐ PCs
03. ☐ Windows Terminals/Thin Clients
04. ☐ Workstations
05. ☐ Storage/Backup (Optical,Disk,Tape,RAID)
06. ☐ Printers
07. ☐ Printer/Fax/Copier Hybrids (Multifunction Printers)
08. ☐ Minis
09. ☐ Mainframes
10. ☐ Fax/Modem Boards
11. ☐ Memory/Chips/Boards/Cards
12. ☐ Other Computers/Peripherals

SOFTWARE/APPLICATIONS
A B
13. ☐ Network Management
14. ☐ Systems Management
15. ☐ Security
16. ☐ Directory Services
17. ☐ Operating Systems
18. ☐ Applications Development Tools
19. ☐ Database Management/RDBMS
20. ☐ Groupware
21. ☐ E-Mail
22. ☐ Enterprise Resource Planning (ERP)
23. ☐ EDI
24. ☐ Desktop Videoconferencing
25. ☐ Imaging
26. ☐ Middleware/Serverware
27. ☐ Document Management
28. ☐ Site Metering Tools
29. ☐ Data Warehousing
30. ☐ Anti Virus Software
31. ☐ Multimedia
32. ☐ Y2K Conversion Software
33. ☐ Helpdesk
34. ☐ Other Software/Applications

SERVICES
A B
35. ☐ BPO (Business Process Outsourcing incl. Financial Services, HR, Logistics etc.)
36. ☐ Applications Outsourcing
37. ☐ Call Center Outsourcing
38. ☐ Systems Integration/Consulting
39. ☐ Education/Training Services
40. ☐ Other Services
None of the above (1 - 40)   41. ☐

10. Please indicate the platforms that are currently installed/planned: (check ALL that apply)
A. Currently installed   B. Planned for purchase

NETWORK PROTOCOLS
A B
01. ☐ TCP/IP
02. ☐ IPv6
03. ☐ SNA
04. ☐ Novell IPX/SPX
05. ☐ APPC/APPN/LU 6.2
06. ☐ NETBIOS/NETBUEI
07. ☐ NFS
08. ☐ SNMP
09. ☐ Other Network Protocols

LAN/WAN ENVIRONMENT
A B
10. ☐ Gigabit Ethernet
11. ☐ Switched Ethernet
12. ☐ Fast Ethernet
13. ☐ Ethernet
14. ☐ ATM
15. ☐ Token Ring/Token Ring Switching
16. ☐ IP Switching
17. ☐ Layer 3,4 Switching
18. ☐ FDDI
19. ☐ 100Base-T
20. ☐ 10Base-T
21. ☐ Fibre Channel
22. ☐ Wireless
23. ☐ DSL
24. ☐ ISDN
25. ☐ Frame Relay
26. ☐ Private Line T1, T3, FT-1, SONET
27. ☐ Other LAN/WAN Environment

NETWORK OPERATING SYSTEM
A B
28. ☐ Windows NT/Windows 2000
29. ☐ Novell (NetWare 5.X)
30. ☐ Novell (NetWare 4.X)
31. ☐ Novell (NetWare 2.X,3.X)
32. ☐ LINUX
33. ☐ Microsoft (LAN Manager)
34. ☐ Banyan (Vines)
35. ☐ IBM (LAN Server)
36. ☐ Other Network Operating System

COMPUTER OPERATING SYSTEM
A B
37. ☐ NT Workstation
38. ☐ Windows 2000
39. ☐ Windows 98/95/3.1
40. ☐ Intel based UNIX
41. ☐ RISC based UNIX (incl. SOLARIS)
42. ☐ LINUX
43. ☐ DOS
44. ☐ OS/2,OS/2 WARP
45. ☐ OS/400
46. ☐ IBM MVS/VM/VSE/ESA
47. ☐ Digital VMS
48. ☐ Macintosh
49. ☐ Other Computer Operating System
None of the above (1- 49)   50. ☐

11. Which of the following hardware platforms are installed/planned in your company? (check ALL that apply)

A - Mainframes (Large Scale)
1. ☐ IBM
2. ☐ Other

B - Minis (Midrange)
1. ☐ IBM RS/6000
2. ☐ IBM AS/400
3. ☐ Digital/Tandem/Compaq
4. ☐ Unisys
5. ☐ H-P
6. ☐ Other

C - Workstations
1. ☐ Sun Microsystems
2. ☐ H-P
3. ☐ Digital/Compaq
4. ☐ IBM
5. ☐ Silicon Graphics
6. ☐ Other

12. What is the estimated gross revenue of your entire company/institution? (check ONE only)

1. ☐ $20 Billion or More
2. ☐ $10 Billion to $19.9 Billion
3. ☐ $1 Billion to $9.9 Billion
4. ☐ $500 Million to $999.9 Million
5. ☐ $100 Million to $499.9 Million
6. ☐ $50 Million to $99.9 Million
7. ☐ $10 Million to $49.9 Million
8. ☐ $5 Million to $9.9 Million
9. ☐ $4.9 Million or less
10. ☐ None of the above

13. For which areas outside of the US do you have purchase influence? (check ALL that apply)

1. ☐ Europe
2. ☐ Asia
3. ☐ South America
4. ☐ Australia
5. ☐ Middle East
6. ☐ Africa
7. ☐ Canada
8. ☐ None

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Intranets, Messaging/Groupware, E-commerce, Security, Network Management, Directories

Sun-Netscape pumps up apps server

BY CAROLYN DUFFY MARSAN

The Sun-Netscape Alliance last week announced that it has enhanced its high-end electronic commerce server and added support for the latest Java standards in an attempt to solidify the server's hold on transaction-heavy customer Web sites.

Netscape Application Server 4.0 supports the recently released Java 2 Enterprise Edition, a package of programming interfaces and network services for building large-scale applications. The e-commerce server software also includes an integrated transaction monitoring system and improved performance with third-party network management and application development tools.

The enhancements make Version 4.0 the fastest and most scalable offering on the market, Alliance officials claim.

"The bar is much higher than it was before," says Yuan Huntington, group product marketing manager for the Netscape Application Server. "With the scalability that we're offering now, we can support sites with millions of users."

Netscape Application Server is on a roll, reporting its highest-ever sales in the quar-

ter ended June 30. Alliance officials say that half of the 10 most popular financial Web sites use earlier versions of the software, as do a majority of the top 10 ISPs.

"A year ago, application servers were

A new Web workhorse

Netscape Application Server 4.0 highlights:

- Support for Enterprise JavaBeans, Java Server Pages and Java Servlet API.
- Built-in transaction monitoring system from IBM.
- Custom and automatic load-balancing options.
- Support for SNMP-based network management tools.

Blue Martini customizes e-comm

BY ELLEN MESSMER

SAN MATEO, CALIF. — Blue Martini Software has introduced a new edition of its electronic catalog software that gives online retailers much more flexibility in the way they present their merchandise to prospective customers.

E-Merchandizing System 2.0, a package that costs upwards of a half-million dollars, now includes a new content management module and the ability to analyze the "click patterns" of users as they browse a company's Web site.

The content management component lets a marketing team organize text, images, videos or templates for merchandise so that the goods can be sold online in a variety of ways, depending on the time of year or the online shopper's location. A version management feature lets multiple authors modify material or check it out of the E-Merchandizing Server, the part of the E-Merchandizing System used to create catalog content in a workflow environment (see graphic).

When complete, the catalog Web files are sent in batch mode to a staging environment to be checked. Then, final content is sent to the Blue Martini WebStore application server.

The merchandising software, which

runs on Windows NT and Solaris, now also includes options for the cross-selling of multiple products, product substitution, a gift registry and employee shopping.

"In Version 2.0, we also have rules-based promotions, which means you can have personalized discounts based on who is shopping, what's in the basket and what time of year it is," says Bill Evans, Blue Martini's vice president of marketing.

Even when the shoppers are anonymous, information on Web sites can still be personalized for them. This is done by analyzing shoppers' click streams and through data-mining technology included in the E-Merchandizing System, which now comes with Seagate's Crystal Info reporting tool.

Gymboree, a Burlingame, Calif., retailer of children's apparel, plans to switch from its home-grown Web catalog to one based on Blue Martini software by October in order to be ready for the holiday shopping season.
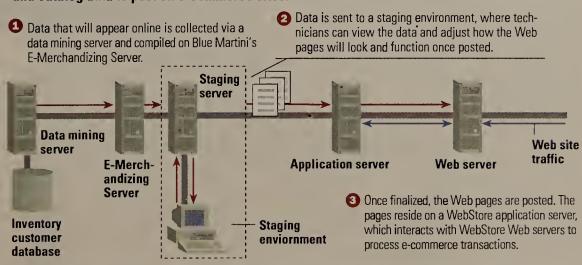
"We were early adopters of e-commerce back in '97, but we were doing it in a somewhat primitive way, with limited selection and a rudimentary fulfillment process," says Gymboree spokeswoman Jordan Goldstein. "But now we've opened a distribution center for online, and we want to be proactive about personalization, taking advantage of what we know about shoppers."

Blue Martini: www.bluemartini.com

Streamlining Web page production

Blue Martini's modular WebStore architecture makes it easier for online retailers to cull inventory and catalog data to post on e-commerce sites.

① Data that will appear online is collected via a data mining server and compiled on Blue Martini's E-Merchandizing Server.

② Data is sent to a staging environment, where technicians can view the data and adjust how the Web pages will look and function once posted.

③ Once finalized, the Web pages are posted. The pages reside on a WebStore application server, which interacts with WebStore Web servers to process e-commerce transactions.

Data mining server

Inventory customer database

E-Merchandizing Server

Staging server

Staging enviornment

Application server

Web server

Web site traffic

Trend Micro keeping a sharp eye on message content

BY JOHN FONTANA

CUPERTINO, CALIF. — Trend Micro is beginning to look at the content of e-mail, not just viruses, as it seeks to boost the capabilities of its ScanMail products.

The company in two weeks plans to ship Version 3.0 of ScanMail for Exchange, which includes content filtering technology and failover support for Microsoft Exchange servers linked in a cluster. Trend intends to make the features available for all its messaging server-based ScanMail products, including those for Lotus Notes and cc:Mail, Microsoft Outlook and Hewlett-Packard OpenMail.

Trend has borrowed technology from its InterScan VirusWall product to create a plug-in for ScanMail called eManager. The product allows e-mail to be filtered based on the content of a message and whether or not it is considered spam. The content filter can look for offensive or inappropriate language or certain code words or names that should not be passed in e-mail. The spam filter is linked to a data-

Cleaning up the mail

Trend Micro's ScanMail for Exchange 3.0 includes a feature called eManager that lets companies set rules that block offensive content and spam.

The antispam filter lets e-mail administrators screen for known spam based on a series of preset rules.

base of known spam addresses and Web sites that Trend maintains, which can be downloaded onto Exchange servers.

Both eManager filters block e-mail before it has a chance to clog servers or pass inappropriate content, Trend officials say.

The company also has taken advantage of the Microsoft Cluster Service API in order to support clusters of Exchange servers. Deploying Exchange servers in clusters has become popular to ensure scalability and reliability. ScanMail monitors each server in the cluster to ensure all mail is checked for viruses and content.

ScanMail for Exchange 3.0 also addresses macro viruses and message-attached executables with a new Emergency File Blocking service. Administrators can use the service to block all attachments or specifically filter such content as .exe attachments or .doc attachments that include macros.

"As content viruses become more common, we'll see all the vendors going to content filtering," says Kurt Schlegel, an analyst with Meta Group. "The next big focus will be speed — how quickly the vendors can get the fix out to combat fast spreading viruses or worms."

The speed at which a virus can spread was recently highlighted by the Melissa and Worm viruses that rocked corporate e-mail systems.

Trend is addressing the issue with ActiveUpdate, which allows remote and local servers to be updated automatically with the latest virus information on set schedules. Trend also

has added a ScanMail Server Status feature that reports the health of ScanMail and the version of the virus database running on each server.

"The problem is content, not just viruses," says Dan Schrader, vice president of new technology for Trend. "The goal is to protect all the content threats."

ScanMail for Exchange 3.0 is priced at $5,000 without the eManager plug-in and $6,250 with the addition. Both prices are for 250 users.

Separately, Network Associates last week unveiled another virus detection program for Exchange.

GroupShield for Exchange Version 4.0.3 features Viru-Logic, which detects false positive results when scanning for viruses. This increases the accuracy of virus detection. The software also has a "virus lock" to prevent reinfection from viruses lying dormant in private folders.

The Network Associates product is priced at $19 per seat, per year for 5,000 nodes or more.

Trend: www.antivirus.com; Network Associates: www.nai.com

Sun-Netscape,

really for early adopters, people experimenting with e-commerce. But now they've become mainstream products," Huntington says. "Companies are looking at application servers as the foundation to build their online businesses."

Available for four years, Netscape Application Server is a relative old-timer in the Web application server marketplace. Analysts report that the package has more large-scale deployments — including online stock trading site E-Trade Securities and health care information provider drkoop.com — than do competing products from IBM and BEA Systems.

Support for the Java 2 platform is important for application portability, and other Web application server vendors have announced plans to adopt it.

By moving away from a proprietary programming interface to industry standards, the Sun-Netscape Alliance is offering its

customers investment protection, industry observers say.

But what customers will like even more is the fact that performance won't suffer with support for the new Java standards. In fact, alliance officials say that by coding to the Java 2 standards instead of the older proprietary interface, customers can improve the performance of their applications by 20% or more.

"There's always a risk that when you try to achieve a level of portability across a wide set of platforms, you will sacrifice something in performance, look and feel or behavior," says Tom Dwyer, research director for Enterprise Java at Aberdeen Group in Boston. "[The Sun-Netscape Alliance] didn't sacrifice performance."

Dwyer says the Netscape offering has traditionally been the leader at providing high performance and high availability in environments with unpredictable amounts of Web traffic. He says these areas of strength continue with the latest version.

Another performance enhancement is a built-in transaction monitor from IBM, which is also found in IBM's competing WebSphere product.

"Companies that are doing a large amount of e-commerce transactions, where they are exchanging money or data, will appreciate . . . the data integrity that this offering provides," Huntington explains.

Coupled with improvements in load balancing and failover functionality, the transaction processing enhancements are "a good thing," says Nicholas Gall, a vice president at consulting firm Meta Group in Westborough, Mass. "These advancements in availability are important, as a lot more attention is given to situations like the eBay fiasco, where people were off-line for hours."

Pegasus Systems, the largest processor of hotel reservations on the Internet, selected the Netscape offering from a field of 12 Web application servers because of its ability to handle large numbers of transactions

and reroute traffic if a server goes down. The Dallas-based operator of travelweb.com is running the software on two production servers and is handling three times the amount of traffic this year over last year.

"What really has impressed us is the scalability and the reliability of the architecture," says Steve Reynolds, chief information officer at Pegasus. As far as Version 4.0 is concerned,

Reynolds says he is most interested in the reported speed increases. "We're interested in anything that will enhance our performance."

In a related announcement, Netscape Application Builder 4.0 has been enhanced with JavaBeans support, a variety of wizards and interoperability with third-party application development tools such as Symantec Visual Café and Macromedia Dreamweaver.

Expected to ship this month, Netscape Application Server 4.0 is priced at $35,000 per CPU, the same price as earlier versions.

The Sun-Netscape Alliance was formed in March when Sun and America Online (which had acquired Netscape) joined forces to offer a complete line of Web and e-commerce products and services for enterprise customers. The next version of the Netscape Application Server, expected in the first half of 2000, will marry Netscape's software with Sun's NetDynamics Application Server. ◢

'Net Insider
Scott Bradner

THE ABSENCE OF NETWORK SECURITY

"There is no such thing as a secure computer network."

The *New York Times* said that a week ago and if *The Times* said something, it must be true. But do protocol and applications developers understand the implications of this?

Almost by definition, computer networks cannot be, in themselves, secure. The aim of computer networks is to facilitate access to computer-based resources. In order to do so, they transport information from one place to another, generally with a user or two somewhere along the line.

Users are a problem in the security world. They forget things like passwords. They get frustrated at the imposition of complex security procedures and circumvent these procedures to make their lives easier. They loan their accounts to friends. And many users think they are underpaid, overworked or underappreciated — as a result, these users are potentially corruptible.

It sure would be a lot easier, security-wise, without users.

Anything you do to make users' lives easier has security implications. For example, if you allow a remote user to access corporate servers, you have to open a door that other remote people may be able to exploit. If you run an e-mail system that can transfer programs or macro-filled documents, you are opening a barn door.

But it turns out that a major problem is the attitude of protocol and applications designers.

In the IETF, we now insist that all working groups keep security in mind as they design protocols. But even in the IETF, security is often reluctantly added at the end rather than designed in from the beginning. I say reluctantly because when I ask why a working group has not yet considered security, I keep getting the response "my customers are not asking for security." It has sometimes been quite a fight to get working groups to seriously worry about the issue.

If it's this hard to get secure protocols within an organization that has made security a specific goal, it seems to be almost impossible in commercial applications development organizations. Features are added to programs seemingly without any thought of the security implications.

This is not going to be easy to fix. Security is hard. Some of the people who would exploit security holes are very smart (if more than a bit immoral). They will find any small chink in the armor — and unless the developer is a real security expert, it is hard to see a chink when programming one in. The problem is made harder because of the easy-to-run exploitation scripts that get widely distributed.

Companies must get security expertise into their software development groups and users must use the resulting security tools. Otherwise, the Internet bubble may burst in a very ugly way.

Disclaimer: Harvard has seen many bubbles come and go, but the above worry about this bubble is mine.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@harvard.edu.

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Better answers.℠

Microsoft makes important shift with Zoomit

BY JOHN FONTANA

Microsoft has been working for the past three years to integrate a directory into its operating system. But only in the past few months has the company begun nailing down answers to imposing interoperability questions.

More than six months ago, the top brass at Microsoft bought into the idea of adding sophisticated interoperability — known as metadirectory technology — into Active Directory. The belief is that the technology will make it easier for IT executives and system architects to meld Active Directory into their directory infrastructures.

It was not only the right move but also a welcomed one, according to IT executives and industry observers.

The new Microsoft focus is a far cry from the original vision of a network operating system (NOS) directory that would absorb existing directories into Windows 2000, which is scheduled to ship by year-end.

What Microsoft now envisions is a flexible Active Directory that can be deployed as an enterprisewide directory for managing user and resource identities, or as a peer or subordinate directory to existing infrastructures.

The new direction is encapsulated in Microsoft's recent purchase of Zoomit, which develops a metadirectory product called Via. A metadirectory is a mechanism to interconnect disparate directories to provide a single logical point of access.

"The metadirectory is an engine that keeps things synchronized forever," says Kim Cameron, former president of Zoomit, now with Microsoft. In its simplest iteration, a metadirectory can consolidate data into a central repository. At its most complex, a metadirectory can replicate individual chunks of data between master directories.

Obtaining the Via metadirectory signals a realization by Microsoft that it must respect the heterogeneous nature of most corporate directory deployments. Current interoperability mechanisms, including Active Directory Services Interfaces and synchronization connectors for Novell Directory Services (NDS) and Microsoft Exchange, revolve around Active Directory as the authoritative directory. Both mechanisms are less desirable than a metadirectory.

The Via move also shows Microsoft understands that IT executives are not willing to go through agonizing political and cultural battles that punctuate a move to centralized authority over corporate data.

Now Microsoft has a proven technology that has been developed for the past three years by the leading metadirectory vendor.

The prevailing question, however, for the 100 IT shops that have deployed Zoomit and the 100 others that are implementing it, is how will Microsoft integrate Via?

Microsoft will preserve Via's interoperability tools but make the product easier for a wider range of

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DIRECTORY INTEGRATION
Metadirectory technology putting Microsoft-centric view of directory to rest.

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customers to use, perhaps by adding templates or preconfigured rules, according to Peter Houston, lead product manager for Active Directory. Integration of Active Directory and Via is not expected until the first half of next year.

Microsoft late last month met with some Zoomit customers individually and squelched fears it would disfigure Via.

"Microsoft really does get it," says Don Bowen, directory architect for a large heavy equipment manufacturer in the Midwest, after meeting with Microsoft officials. The most important pieces for connecting directories are the tools, such as Zoomit, he says. "I feel good about the acquisition, but right now I have faith Microsoft will do the right thing."

Bowen does not want to replace his current enterprisewide Netscape directory with Active Directory. He also wants to maintain the ability to designate authoritative directories and synchronize directory entries down to the attribute level. Microsoft officials say Via will continue to support that.

What Microsoft intends to highlight initially in Via is called the "join." The join takes user data from disparate directories and ties it together into a universal user identity. For example, a user can be listed as Joe User in the e-mail system, J User in an application directory, Joe R. User in the human resources database and UserJ in the NOS directory. The join understands

that all those unique names represent one person and creates a Joe User object in the metadirectory.

The join capability provides the ability to manage users in a central place without having to change existing user IDs.
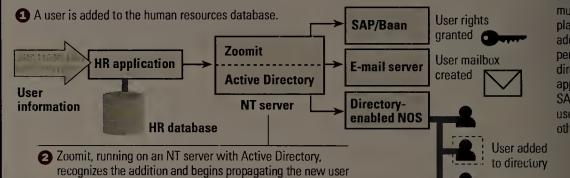
"If you tell enterprise customers to change all their user IDs, they would laugh at you," Houston says. "With Zoomit, you keep what you have in place."

In that respect, Via allows flexibility, one of the most important characteristics of an enterprisewide directory, according to Jamie Lewis, president of The Burton Group, an analyst firm that concentrates on directory issues. The flexibility gives users decentralized control of data while maintaining centralized integration and management.

The join uses Via's brokering and rules engine.

The brokering engine aggregates user information into a single object. It also detects changes in directories, propagates them through the infrastructure, and tracks objects if they change places in the directory structure (see graphic). The rules engine determines what the broker can and can't do, such as accessing data that is not stored in the metadirectory.

"The rules engine is as core to the metadirectory as triggers and stored procedures are in the database world," Houston says.

The bottom line is that the metadirectory ties directories into a logical whole creating an infrastructure to support users, applications and security.

The concept also is catching favor with Novell. The company recently unveiled its DirXML feature for NDS 8.0, which uses XML to present unified directory data to networked applications.

"The industry has talked about a single corporate directory, but it makes sense to leave existing directories where they are and integrate," says Allen Moffett, solutions architect for Banyan Systems, which last month launched a directory consulting division. "Microsoft now has a much better story on that." ▨

Mapping the metadirectory

The metadirectory technology Microsoft acquired with Zoomit allows Active Directory to be a repository for directory information. The Zoomit engine, called Via, adds intelligence for synchronizing changes across directories and enforcing rules for sharing and cataloging directory data.

1 A user is added to the human resources database.

User information — HR application — HR database

Zoomit / Active Directory — NT server

SAP/Baan — User rights granted
E-mail server — User mailbox created
Directory-enabled NOS

2 Zoomit, running on an NT server with Active Directory, recognizes the addition and begins propagating the new user to numerous directories.

3 Zoomit can create an e-mail account on multiple e-mail platforms. It also can add users and grant permissions for other directory-enabled applications, such as SAP or Baan, and add users' information to other NOS directories.

User added to directory

Ask
Dr. Intranet

_By Steve
Blass_

I'm an intranet administrator with a Unix background moving into a Windows NT network that is experiencing difficulties. I'm looking for a Windows version of the TCP/IP traffic-monitoring tool tcpdump so I can use my collection of Perl scripts built for analyzing tcpdump network traces. Do you know where I can find a Windows version of tcpdump?

In addition, I'd like to build a basic network security monitor. Where can I find information about what kinds of traffic are indicative of a hacking attack?

Via the Internet

You can find a free version of tcpdump for Windows at http://netgroup-serv.polito.it/analyzer. The utility, Windump, even reads Unix-generated tcpdump output files. Also see Network World Fusion's Security Alert, daily security news and bulletins at www2.nwfusion.com/security/bulletins.html.

You can find information about how hackers attack systems from many sources, including www.cert.org. You can find security-related 'Net mailing lists by searching on the phrase "network security."

One source of information about hacking strategies is the set of tcpdump trace files from the Def Con "Capture the flag" net, on which about 150 hackers tried to break into each other's systems and target servers. There are about 200M bytes of these log files available in 1M- to 2M-byte files from www.securitywizards.com. There is a live demo available at http://24.6.138.242.

Blass is a network architect at Sprint Paranet in Houston. You can reach him at drintranet@paranet.com.

Voice over DSL sounds promising

BY GREG LANGDON

Digital subscriber line (DSL) service to date has been used for moving data over the Internet at high speeds through existing copper links. However, a new class of equipment will broaden DSL's usefulness by allowing the movement of voice and data simultaneously over a single copper link, without architectural changes to existing networks.

The payoff: Smaller organizations will soon be able to buy integrated, richly featured voice/data services in a way previously available to only the largest firms.

All the major telephone companies have standardized on ATM as the Layer 2 DSL transport protocol. In DSL data applications, stand-alone or networked PCs connect to a DSL modem, bridge or router, which function as network endpoints and provide a high-speed interface to the DSL service. The DSL modem, bridge or router encapsulates the PCs' IP-based data into ATM and transmits the resulting cell flows as ATM over DSL to the carrier's central office. At the central office, ATM traffic from multiple DSL links is aggregated and multiplexed onto a common upstream link, and each cell flow is directed toward its destination by one or more ATM switches.

DSL links are ready-made for voice/data integration. ATM is designed to simultaneously transmit diverse traffic types over a common net and does an exceptional job differentiating traffic into distinct classes of service. What's needed to enable integrated voice/data over DSL is equipment that supports voice over ATM

at each end of the local loop. The types of equipment needed for customer premises and central offices are the next-generation integrated access device (NG-IAD) and voice gateway, respectively.

The NG-IAD eliminates the DSL modem, bridge or router for data communications by interfacing PCs or PC networks to the DSL service, encapsulating IP-based data into ATM for DSL transmission and handling functions such as routing and IP address management. At the same time, the NG-IAD provides the DSL interface for voice equipment such as telephones, fax machines, key systems and PBXs, and sends and receives voice over ATM on the same DSL line. Because ATM excels at simultaneous transmission of voice and data, the result is toll-quality telephone service with enhanced calling features intact, and continuous, high-speed Internet access or remote LAN access over a single twisted copper pair.

At the carrier's central office, a voice gateway completes the picture for integrated voice/data over DSL. Encapsulated voice traffic received at the carrier's DSL Access Multiplexer (DSLAM) is sent to the voice gateway, where it is converted to conventional voice signals and sent to

a Class 5 voice switch. Data received at the DSLAM is carried as packet or cell traffic to its destination, typically an ISP or corporate network, just as in current DSL service.

This service can be readily and seamlessly integrated into existing nets. The use of a NG-IAD at the customer premises ensures that the impact on the voice and data equipment is small. Also, a voice gateway converts voice traffic between voice over ATM and the traditional formats used in existing phone nets.

One of the primary benefits of integrated voice/data over DSL is the ability to purchase all voice and data services from a single provider while gaining very high-speed data communications. Any business of any size will be able to enjoy the simplicity of a single point of contact for customer service, billing, expansion of services and management.

Another benefit is NG-IADs can dynamically make under-used voice-traffic bandwidth available to data traffic.

The market for NG-IADs has just begun to emerge as vendors explore the requirements for offering bundled services using DSL and a single copper pair. Technology demonstrations of NG-IAD and voice gateway products working together have provided proof of concept. Although there are limited equipment offerings that can provide this functionality today, a number of options will be available by next year and widespread adoption should follow.

Langdon, vice president of marketing at Efficient Networks, a DSL CPE supplier in Dallas, can be reached at GLangdon@efficient.com or (972) 991-3884.

HOW IT WORKS

Voice and data over DSL

Extending the data capabilities of DSL services to include voice will give organizations of all sizes access to benefits that have until now been enjoyed only by big companies.

❸ At the carrier's central office, a DSLAM sends encapsulated voice traffic to voice gateway, which converts that traffic to conventional voice signals.

❶ A NG-IAD on the customer site encapsulates IP-based data into ATM for DSL transmission and handles routing and IP address management.

❷ The use of ATM as Layer 2 DSL transport protocol lets diverse traffic types travel over a single copper link.

Gearhead — inside the network machine . Mark Gibbs

GETTING A HANDLE ON RIFF AUDIO AND VIDEO FORMATS

Multimedia has become one of the driving forces of our industry. And underneath it all is a cornucopia of technology, some of which may surprise you. For example, one of the most common standards for multimedia data is Microsoft's Resource Interchange File Format (RIFF).

"RIFF?" you may be saying, "Never heard of it!"

Au contraire, my friend, you have come across it in the guise of Waveform (WAV) audio content and Audio Video Interleave (AVI) video files.

Actually, many types of content can be encoded in RIFF format: Bitmapped image data as RDI files, MIDI musical data as RMI files, and collections (called bundles) of RIFF files as BND files. But it turns out that the only RIFF-type formats that have been implemented are AVI and WAV.

RIFF files are binary files built from multiple nested data structures called "chunks" (think of a bag holding two or three bags that each contains different items).

Each chunk starts with an ID marker to identify the data followed by a value giving the size of the chunk data. After that comes the actual data.

The largest chunk (the biggest bag) identifies the content as being in RIFF format. If the data is in little-endian ordering (the least significant byte is in the lowest address in a multibyte value) the ID marker reads "RIFF" while big-endian ordering (the opposite of little-endian) reads "RIFX." (There is no ID for middle-endian ordering, but because that died with the likes of Digital's PDPs, it probably doesn't inconvenience anyone.)

WAV files are simple. They are uncompressed 8- or 16-bit sound samples prefaced by a header that declares the data to be of WAV type and the specification of how the audio data is formatted.

The header usually specifies Pulse Code Modulation (PCM), which represents the sound as a sequence of sampled values.

Other WAV chunks specify the sample rate used — typically 11,025 sample/sec for telephone quality, 22,050 sample/sec for radio quality, or 44,100 sample/sec for CD quality. (All you telco types please note that is samples, not bits, per second.) The chunks also state the number of audio channels, which is usually one (for mono) ,while two (stereo) is not uncommon. It is possible to encode up to 65,536 channels (death by surround sound, perhaps).

In an AVI file, the chunk inside the RIFF chunk has an ID of "AVI" and contains subchunks that describe the parameters of the movie as well as the movie frames and audio data (in WAV format).

We don't have the space to go into the parameters in detail as there are a lot of them required to define the contents, but they include the time delay between frames, number of frames stored, and the height and width of the video frame.

Working with AVI is easy — there are plenty of tools to simplify conversion to and from other formats such as MPEG and MOV. Converting video tape to AVI format is supported by a range of image capture boards.

Editing of AVI is also straightforward using tools such as Adobe Premier (www.adobe.com), although you would be advised to use the fastest platform you can lay your hands on.

There are also many graphics applications that output AVI files directly. Gearhead has had great success with Asymetrix Web 3D (www.asymetrix.com), which provides a simple and effective drag-and-drop 3D animation environment.

Multimedia, including WAV and AVI technologies, are going to be key elements of your IT environment. Gearhead will be looking at more multimedia technology in future columns, so let us know what related topics you'd like to see covered. Present your thoughts to gb@gibbs.com.

Voice over DSL

So you've read this week's main Technology Update story, and you want to learn more? Hey, isn't that what the Web's for? You bet!

Come online for additional resources, including a white paper from Efficient Networks on the topic, links to the ADSL Forum's specifications for ATM over DSL (the underlying technology used to push voice traffic over DSL links) and a look at one company that's building hardware and software for the market. Or if you want to back up a moment and bone up on digital subscriber line in general, we've got a whole series of links for you, including primers (on all the flavors of DSL), forums and the latest DSL news from *Network World*.
DocFinder: 4031

Help Desk

This week, Ron Nutter offers insight on technical certification preparation. A reader says his company is using an increased number of Cisco routers, and he wants to be better trained to use them. He wants to take the Cisco Certified Network Associate exam but isn't sure how to prepare. Find out what study guides Nutter suggests and his tips for hands-on practice.
DocFinder: 4029

A cache-y forum

Don't just read our Face-off this week on enterprise Web caching. Read the arguments on either side, then jump online to debate and pose questions to our guest columnists (and other Fusion users).

Plus, we'll provide the links to all manners of caching primers and news from *Network World* and around the Internet.
DocFinder: 4022

The name game

One thing we learned from our Great Server Name Bake-off is that a lot of you like "South Park," the Muppets and planets — at least based on the names you gave your servers.

We also learned some of you have a mischievous streak — also based on the names that you gave your servers.

Take, for example, the department that named one server "Sun" in honor of a boss who thought everything revolved around her, or the guy who numbered one user's network segment 666 after the user complained about a server named "Beelzebub."

Now comes the hard part for us: Deciding who wins the Dell PowerEdge 1300 server we're awarding to the best entry. Look for the winner's announcement in the forum.
DocFinder: 3732

SLAs

We've put together a guide to resources on service-level agreements, for WAN services and on your network.

Start off with a couple primers that introduce the key concepts, then dive deeper with articles that tell you what to ask for in your carrier contract negotiations and how to write a detailed SLA for your own users on your internal network.
DocFinder: 4032

www.nwfusion.com

FACE-OFF

What is the best approach to enterprise caching?

Does the best caching method include dedicated hardware? Entera says no; InfoLibria says yes.

BY JOHN SCHARBER

A cache proxy server is much like a file server — a set of specialized software that runs on general-purpose hardware. The proxy server buffers the Internet and isolates it from outages. The software actually does the work: the hardware wrapped around most cache appliances is just an industrial-strength PC.

Using an appliance for caching locks you into an expensive hardware box without the flexibility to upgrade as faster hardware becomes available. Appliance vendors rely on software tuning to improve performance because after the purchase you are anchored with outdated hardware.

Assuming that you have well-written software, tuning your operating and file systems will produce some performance achievements, but these pale by comparison to hardware horsepower advancements. Recent industry bake-off reviews have proven that unless you put unrealistic torture-test loads on a cache, all will perform about the same. Tweaking the operating system, kernel, file system and core code path for a customized hardware configuration can give you perhaps a 20% improvement in total cache performance.

In contrast, software caching products let you ride the hardware performance curve. Moore's Law dictates that CPU processing power doubles and the price halves every 18 months. Therefore, running feature-rich, well-tuned cache software on a powerful but inexpensive hardware platform guarantees less expensive, better performance for the future. Cache appliance vendors are using PC-based hardware to ride this curve; look carefully under the hood to make sure they're passing those benefits on to you.

For example, running a well-written piece of commercial caching software on a quad-Xeon PC — or whatever the fast chip du jour happens to be — can instantly give you two times the performance or more. Compare that to simple software tuning, feature adding or other schemes that may at best produce only a 10% to 20% performance bump and at worst could actually reduce overall performance.

More significantly, cache appliance vendors may have optimized too quickly and too narrowly. The Internet is still evolving, and your appliance might not have what it takes to keep up.

Although choosing the best hardware will give you the best price/performance, you still need to shop carefully when buying software. Cache products can be most clearly differentiated in software features. New protocols emerge quickly on the Internet; caches need to be able to support these just as quickly. Software products — particularly those with plug-in architectures — are better suited to these changes than special-purpose, HTTP-only appliances.

Scharber is president, CEO, chief technology officer and co-founder of Entera, an Internet content delivery systems company in Fremont, Calif. He can be reached at js@entera.com.

BY SOLOM HEDDAYA

For networks with relatively low performance and reliability demands, proxy servers may make sense. But for companies that count on connectivity, a caching appliance is the better option.

A true caching appliance is more than software running on dedicated hardware; it is an integrated system containing at least some components that are custom-built for the caching function. The remaining components must be specially configured and tuned as well. The caching appliance consists of the network hardware and software, the operating system kernel, file system, cache server and system manager.

Caching appliances offer a number of advantages over software-only offerings. First, an integrated system combining software and hardware is easier to install. Appliances just need to be plugged in and given an IP address.

Second, an appliance is more reliable. Software caches are compromised by any lack of reliability in other system components — software or hardware — that are not under the control of the cache designer. Even simple human errors in configuring the various components in a consistent way can cause a loss in the caching function.

Third, integrated software and hardware provide higher performance. General-purpose operating systems expend significant resources to ensure that competing applications share the machine safely and fairly. Achieving high-performance caching requires the elimination of much of this redundant overhead, as well as the placement of caching functionality as low as possible in the layers of the system. None of these optimizations can be done in a software-only caching product, which cannot change system software outside the caching application itself.

Fourth, total cost of ownership is less for an appliance. Initially, caching software can be less expensive, but over time, the increased management costs surpass the cost of buying an appliance in the first place.
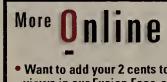
Fifth, an appliance is easier to manage. You can manage appliance caches as a single unit, whereas software caches require you to separately manage other caching components, such as the operating system kernel and hardware.

Finally, an appliance is more secure. Appliances are inherently difficult to break into because they can completely shut down many of the network services typically required of a general-purpose host computer running a software cache. Intruders often use these network services to break into a system.

Software caches can be useful in situations in which performance and reliability are not critical and strong system management expertise is widely available and inexpensive. In general, however, cache appliances represent a more beneficial approach for today's large enterprises.

Heddaya is vice president, research and architecture, at InfoLibria, a network infrastructure company in Waltham, Mass. He can be reached at aheddaya@infolibria.com.

Opinions

Going great guns, Covad is worthy of watching

As a matter of course, we revisit the companies we name to our "10 Companies to Watch" list to see if we were on the mark (*NW,* April 26, page 73). I just got back from Covad Communications, the king of DSL, and I'm happy to report the company is thriving.

Order rates for the DSL local access links the company installs for ISPs are doubling every quarter. Covad has DSL Access Multiplexers (DSLAM) in 440 central offices (on its way to having 1,000 by year-end) and some 20,000 lines installed in 17 out of 22 targeted regions. Areas served today include San Francisco, Los Angeles and New York.

In San Francisco, a region that includes Oakland and surrounding towns, there are 143 local exchange carrier central offices. Covad has DSLAMs in 80 of these.

The company can charge into a region that fast by using a success-based deployment model. When Covad enters a city, it installs empty DSLAM racks but doesn't populate the racks with expensive electronics until demand dictates. That strategy limits upfront financial commitments and exposure.

By comparison, upgrading cable TV systems to support cable modems -- the technology to which DSL is most often compared — typically requires tremendous upfront re-engineering costs before a single user can be supported.

While Covad views the ISPs that sell its service as its primary sales channel, it also sells some end-to-end services directly. Companies such as Cisco and Oracle lease T-1 or T-3 access trunks into Covad's national ATM network. That network links regional ATM nets that, in turn, connect the DSLAMs.

Covad says a 144K bit/sec link to a remote office starts at $155 per month, compared to $800 per month for a 128K bit/sec frame relay link (the frame price includes WAN access, port charge and permanent virtual circuit fee).

It is the ATM core that will enable Covad to ultimately branch into voice services, which the company has already begun testing.

While everything is adding up in Covad's favor and the future looks bright, the question remains: How will it fair in the long run if AT&T can get its cable TV holdings to support two-way everything?

Given the enormity of that task, I like Covad's near-term chances. Keep watching.

— John Dix, editor
jdix@nww.com

Message Queue

ALL CHOKED UP

Jeffrey Fritz's story "Gigabit choke points" (July 5, page 35) is a well-done analysis that makes some good points. However, I think that in a sense he measured the wrong thing.

What he's shown is that typical, current network equipment doesn't have the throughput to take advantage of Gigabit Ethernet. But I'm not sure that end-to-end throughput is really the issue in most networks. Rather, the issue is the total available bandwidth.

A 10M bit/sec Ethernet is plenty of throughput for 99.9% of what people want to do. The problem is, you need a whole lot of bandwidth in the core to give every user the 10M bytes he needs. This is the problem that Gigabit Ethernet is supposed to address. So what would be interesting to test is how much bandwidth you can really get out of a gigabit core. The fact that one server and one client only use 2% of the total bandwidth is hardly surprising. How about 20 servers and 2,000 clients?

A. Michael Berman
Associate provost for information resources
Rowan University
Glassboro, N.J.

Jeffrey Fritz's story "Gigabit choke points" introduced some interesting and perhaps obvious flaws in the deployment of Gigabit Ethernet. I emphasize deployment simply because Fritz makes it clear that today's hardware is not ready for this technology. But what about on the backbone? My company is in the process of expanding its LAN and is considering using Gigabit Ethernet between data centers. We are currently using Fast Ethernet and would like to keep our network native to the Ethernet family. Any recommendations?

James Graves
Director of IT
Multek
Irvine, Calif.

Fritz responds: If your Fast Ethernet backbone is becoming overwhelmed, then Gigabit Ethernet is definitely a way to go. But if you're coasting along on the backbone, you may not need an upgrade at all, even if you expand your LAN.

I urge readers who are interested in Gigabit Ethernet issues to participate in the forum on www.nwfusion.com/forum/choke.html.

NOT READY FOR PRIME TIME

Regarding your editorial "Users and carriers split on managed services" (July 5, page 32):

As much as I agree with the statements regarding the dearth of technical talent available to enterprise network managers and the pace of technology changes they face, I am not convinced that carrier managed services are the solution, for several reasons.

First, managed services are still a revenue blip to major service providers. Therefore, service providers are still spending most of their capital dollars on acquisition, voice and Internet transmission. Managed services are an afterthought. Result: limited automation, limited staff and half-baked services.

Second, service provider sales personnel are ill prepared to gather the technical and business data required to successfully implement managed services. There is a gigantic difference between selling minutes and managing an enterprise WAN.

Third, service providers are struggling, just like the enterprise, to hire and retain the individuals needed to deliver managed services. With more than 5,000 service providers and integration companies all vying for talent, few service providers are prepared to offer the salary and stock plans that will entice high-end personnel to managed services organizations. As a result, many service providers are using third parties, such as INS, to deliver these services.
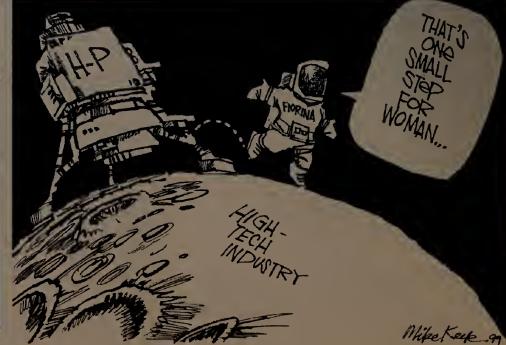
Fourth, some enterprise WANs are just too complex, or are managed at service levels that are just too high, for service providers to capably and profitably manage them.

Managed services are a good method for dealing with staff shortages in simple, straightforward implementations. However, a blanket "you should all be utilizing managed services" sounds like "voice over IP is free" — all hype.

Deb Mielke
Principal
Treillage Network Strategies
McKinney, Texas

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THAT'S ONE SMALL STEP FOR WOMAN...

Mike Keefe '99

Venture Over the Horizon . Kevin Fong

DETERMINING WHETHER A START-UP IS SHOWPLACE OR FIXER-UPPER

As a venture capitalist, people are always asking me, "How do you determine the value of a business idea?" The real estate market provides an excellent analogy. Anyone who has dealt with real estate appraisals knows that two key elements are location and comparables — what similar houses in the neighborhood are selling for.

In the case of a private company valuation, substitute industry sector for location. For example, an Internet-related start-up would be the equivalent of a multimillion-dollar home in an exclusive community. A communications start-up would be equivalent to a million-dollar home in an upper-middle class area. An enterprise software start-up would be comparable to a half-million dollar home in the nice middle-class part of town.

A house's condition also affects its salability. Is it ready for occupancy tomorrow? Or is it a fixer-upper that is going to take work to make it habitable?

To determine a venture's salability, venture capitalists look at a number of issues:

● Does the company have a strong management team already in place or will the investors have to do the job themselves while they look for key managers?

● Is the company's business model proven or untested?

● Is the company entering an existing or new market? If existing, is that market growing or shrinking? If new, does the market have the potential to be large?

● How much technology risk is associated with the company's success or failure?

● What unique contribution will the venture capitalist provide in terms of strategy, people and a network of possible partners?

A company with a fully formed business plan and a strong management team would receive a higher valuation than a one in which investors would have to put in a lot of time and effort.

People invest in real estate with the thought of selling for a profit. In the case of venture capitalists, they look at what is called the "liquidity event" — the moment when the venture capitalist realizes a return on his investment, either through an initial public offering or the sale of the company. The IPO market, the merger-and-acquisition environment and the market size for the company's products all figure into determining the potential value of the liquidity event.

Each venture capitalist fund has its own requirements for valuation driven by its investment strategy. Different funds will have different ways of providing value, either through the amount of money invested or through the time the firm's partners spend on each investment.

Every home seller believes his property is special and deserves to be fully valued. Every entrepreneur feels the same way. But market forces are the ultimate judge of value, whether you are engaging in a real estate transaction or a venture deal.

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On Security . Winn Schwartau

BACK ORIFICE IS BACK AND IT'S BADDER THAN EVER

Yes, I did it again. I flew 3,000 miles to Las Vegas' eyeball-searing summer heat to go to the Def Con 7 hacker convention. In attendance: three thousand hackers, National Security Agency minions and corporate security types, all sucking down $1 Heinekens 24 hours a day. The focus of this gala event: the release of Back Orifice 2000.

The guys from the Cult of the Dead Cow (CDC), which brought you the original Back Orifice last year, have updated their creation, which the CDC modestly calls "the most powerful network administration tool available for the Microsoft environment, bar none" (www.bo2k.com/index whatis.html).

The CDC's raison d'etre is to exploit the lack of security in NT and Microsoft products in general. The group says the original Back Orifice and Back Orifice 2000 are merely remote administration tools, but many security professionals swear that the creation of Back Orifice 2000 is even more of an attack on organizations.

At Def Con, the CDC put on a rousing show and talked about the great new features that Back Orifice 2000 boasts. It now works on NT rather than just Windows 9x boxes and has a mode that can make an NT machine look like it has gone to the dreaded Blue Screen of Death. In reality, the target machine is processing in the background, under the control of whoever infected it.

The CDC also added additional encryption facilities that are supposed to make the program harder to detect. But the most notable news is that the group plans to make Back Orifice 2000 open source, meaning the source code is free to anyone. Expect dozens, if not hundreds, of copycat versions of Back Orifice 2000 to appear. Hackers will modify the code just enough, they hope, to avoid detection by anti-Back Orifice products. More than 300,000 copies of the original Back Orifice were downloaded. If even a small percentage of those same folks download Back Orifice 2000, make modifications and distribute them, we could see serious problems.

What can you do? You could go to a whole rash of hacker Web sites and download various anti-Back Orifice 2000 products. That would be really stupid. Many of them merely infect you with Back Orifice instead of protecting you. Your best bet is to go to a legitimate vendor, such as an antivirus company, and get the updated signature files, which are capable of detecting and eradicating Back Orifice 2000.

However, if there is a whole slew of polymorphic versions of Back Orifice 2000 floating around out there, your job becomes a lot more difficult.

How often will your antivirus software vendor update its software? How often will you update your anti-Back Orifice 2000 software on your servers and desktops?

Since Back Orifice and Back Orifice 2000 generally infect systems through an e-mail attachment, what changes to your current e-mail policy do you need to make? Will you allow attachments from outside the company to come in, and if so, from whom? Will you go the extreme and forbid attachments? How do you educate your users quickly? Do they open e-mail attachments from people and e-mail addresses they don't know? How about allowing only e-mail attachments from within the company?

I have heard rumblings about a lawsuit against the CDC. One group that does not want to be named is thinking about a civil proceeding under the premise that Back Orifice 2000 is essentially only harmful and, therefore, its creators should pay for damages. The other noise is from law enforcement, which is thinking about charging CDC members under the Racketeer Influenced and Corrupt Organizations Act, and conspiracy to violate almost every computer crime law on the books.

The CDC wants to make a point: Microsoft makes lousy products and it is up to the hackers to make fools of Redmond in public. Microsoft, security vendors and corporations see it differently: They maintain that the CDC is just trying to legitimize hacking under the guise of professional network management.

No matter which story you believe, you are going to have to deal with Back Orifice 2000.

Schwartau is chief operating officer at The Security Experts and president of InfoWar.com, both in Seminole, Fla. He can be reached at winn@ securityexperts.com or winn@infowar.com.

BOTCHED BY BUREAUCRACY

The Defense Department is plodding ahead to shore up network security, but the project faces the same challenges that thwarted a similar initiative before.

BY DEBORAH RADCLIFF

t's Nov. 2, 1988. An Internet worm self-replicates through mail programs and takes down 10% of the file servers connected to ARPANet, the precursor to the Internet. It takes more than a year to clean the worm out of networks connected to ARPANet, which includes the U.S. Department of Defense's MILNet.

At the same time, decentralized networks are springing up throughout the Defense

Department, and the National Security Agency is getting jittery. If hackers were to penetrate these networks, they could sort through personnel records and equipment purchases to determine troop movements and defense buildups. Moreover, these nonclassified nets touch networks that carry more sensitive data, raising concerns about a weak first line of defense.

So the NSA and the Defense Information Systems Agency (DISA) attempted to build a new organization to shore up security of the Defense Department's networks. The initiative was dubbed the Defensewide Information Systems Security Program (DISSP).

But by 1996, the DISSP had failed, before accomplishing most of its goals. Many close to the project blame the failure on turf wars, politics and budget misappropriations. Even worse, some of America's sensitive data may still be hanging in the wind, according to former Defense Department employees. Even today, security is spotty, efforts are fragmented and some systems still lack basic protection such as intrusion detection, say several sources who left the Defense Department between 1995 and 1998.

Last year, the Department of Defense picked up the pieces and began the Defensewide Information Assurance Program (DIAP).

"You might say the DISSP was unsuccessful because of a number of factors. But mainly, it was too early for its time because we weren't as dependent on our networked services as we are today," says Richard Schaefer, director of the DIAP in Arlington, Va.

The DIAP is making headway, aided in part by security policies and program fragments the DISSP left behind. But will the new group be able to overcome the obstacles the DISSP faced?

Schaefer and his team are determined not to make the same mistakes. Nevertheless, he faces the same skirmish that plagued the DISSP — an ongoing turf battle over who controls defensewide network security.

Looking back

After the Internet worm wreaked havoc in 1988, the assistant secretary of Defense for Command, Control, Communications and Intelligence (C3I) launched an effort to organize and secure the Defense Department's unclassified networks. In 1990, the C3I director signed an initial, long-term phase-in plan that created the DISSP and turned its management over to the NSA and DISA.

The DISSP's mission: To manage, coordi-

nate and support security systems and application development projects for military branches and Defense Department program offices; develop standards and protocols for INFOSEC (the NSA's term for the effort); and expedite a centralized security command post.

In 1992, Bob Ayers transferred from intelligence to direct the newly formed DISSP. With him, Ayers brought a computer emergency response team called ASSIST. Prior to transferring, Ayers was chief of the Defense Department Intelligence Information System Computer Security program for the Defense Intelligence Agency.

The program quickly grew to 50 civilian and 39 security specialists imported from various Defense Department military branches, with more to come. They had a lot of ground to cover: The size of the Defense Department's interconnected network is unknown, but some say it supported some two million nodes at the time.

Ayers' team began assessing the security of military WANs and LANs by hacking them. After breaking into a network, the response team would show technicians how to fix their sites to meet DISSP security standards. Other DISSP staffers were creating overall security policy and developing intrusion-detection and encryption tools.

"We tested 28,000 Army, Air Force, Marines, Navy and other Defense Department agency systems and got through on 98% of them," says one former ASSIST team member. "It's frightening how few network administrators detected us. I think it was something like 2%."

The fight for funding

The penetration testing was an important part of the entire DISSP program for one good reason: money.

CAST OF CHARACTERS

Acronym	Agency Name
DISA	Defense Information Systems Agency
DISSP	Defensewide Information Systems Security Program
DIAP	Defensewide Information Assurance Program
NSA	National Security Agency

ILLUSTRATIONS: OCTAVIO DIAZ

Gen. Albert Edmonds, head of the DISA between 1994 and 1997, took the team's findings on a road show to convince Congress and the Joint Chiefs of Staff to fund the program.

Meanwhile, military branches, especially the Air Force, were conducting security evaluations of their own. Under the newly formed Information Warfare center, the Air Force not only tested its own systems, but some of the Army's systems as well. The Air Force successfully penetrated half the systems it tested.

Early in 1994, the Air Force produced the smoking gun needed to persuade decision makers to beef up funding for the DISSP. It caught a hacker deep inside national defense and U.S. Space Command Center systems. The hacker had broken in through a defense contractor's network connection.

"The Air Force had never seen anything like this before," says Kevin Ziese, director of security technology assessment for Cisco, who was part of the Air Force's Information Warfare team until mid-1995. "This was the Pearl Harbor scenario [Edmonds] was looking for. Then a report was delivered to several members of Congress, the Secretary of Defense, the Central Intelligence Agency and the service chiefs."

The Air Force's discovery was part of the impetus for a letter fired off that June by directors of the NSA and the DISA to the deputy secretary of Defense saying current security levels were dangerously unacceptable. It asked for more money — $96 million in fiscal

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year 95; $410 million in FY 96 and nearly $400 million per year for several years thereafter — to enhance an over-extended DISSP.

The memo refers to repeated penetrations over the previous few months by "unknown attackers" who had "gained entry into computers at numerous military installations where they took control of computers, installed back doors and Trojan horses to ensure re-entry into these computers, read and steal data files …"

The memo continued: "The intruders had the capability to destroy these systems, inject false data into databases, compromise the research and development of weapon systems and use these systems to steal large sums of money."

In the end, the DISSP was to receive $705 million over a five-year period, which fell far short of the $400 million per year for which the group had hoped.

Slippery spending

However, only $2 million of that amount ended up going to the DISSP, according to a former DISSP official.

"All that budget increase went into DISA infrastructure — not the DISSP," says another source close to the budget at the time. He says Congress thought the money was going to shore up defensewide security, while that simply wasn't true.

To hear Ayers tell it, the DISSP became a cash cow for other DISA programs during tight budget times. "The money and resources set aside to run this program did not come from DISA. The Army, Navy, Air Force and other departments scraped it together. Then DISA took it," he says.

In an after-action report that was reviewed and approved by several DISA and NSA officials, Ayers contends that in all, 155 DISSP billets (funded job requisitions, most of which were for security managers) and more than $100 million of DISSP money was diverted to other DISA programs during FY 95.

The memo also claims that other DISSP operational programs went unrealized because of this shortfall. For example, no government program management office was built to manage security software acquisition and development. But the report was quietly filed away somewhere in the DISA, and nothing was ever done to remedy the problem.
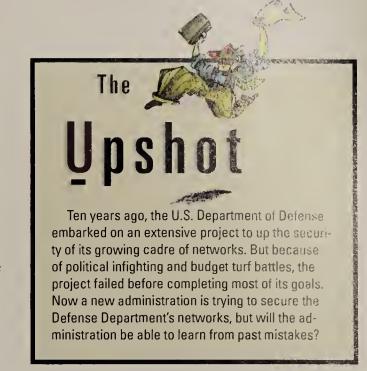
Network World obtained documentation verifying that the DISSP got the shaft. In a carefully worded December 1994 funding distribution signed by Emmett Paige (then secretary of defense for C3I) that spelled out how the budget was to be allocated over the coming years, FY 96 INFOSEC distribution was $105 million, and slightly higher for subsequent years.

However, a close look at the report reveals that only $2 million was actually earmarked for the DISSP. The remaining $103 million was to be poured into building up the DISA's network infrastructure and enhancing security of the DISA backbone, while the money should have been used to secure the military branches' individual networks.

In an e-mail response to a reporter's queries, Paige says he's forgotten all he ever knew about the DISSP, adding, "You could call it a memory dump."

As the DISSP limped along with little budget to execute its mission, existing staff began losing heart. Then the final nail was hammered into DISSP's coffin: A reorganization that split up DISSP personnel and moved them into various DISA jobs.

"We could no longer have any operational synergy between the groups," says one DISSP team member. "A lot of us left in disgust, and the DISSP floundered." Ayers stuck around to manage fragmented security divisions within the Defense Department until his retirement.

The Upshot

Ten years ago, the U.S. Department of Defense embarked on an extensive project to up the security of its growing cadre of networks. But because of political infighting and budget turf battles, the project failed before completing most of its goals. Now a new administration is trying to secure the Defense Department's networks, but will the administration be able to learn from past mistakes?

When the DISSP fell apart, Edmonds was under presidential order to reorganize the DISA so it could put more resources into building its infrastructure. He and another DISA official contend they needed to move DISSP staffers to DISA's central offices to better manage overall security efforts. Edmonds also says that the 20 or so security managers who left the DISSP did so for higher paying jobs.

Here and now

Regardless of who's to blame, the networks the DISSP was supposed to protect aren't all that secure today, according to sources. A current DISA official says many network configurations among Defense Department agencies and bases are still "stove pipes," each with its own internetworking and nonstandardized security policies and tools. Now the problem is the DIAP's to tackle.

That's not to say the armed services and Defense Department agencies that DISSP was supposed to aid haven't made progress on their own.

Says Cisco's Zeise, "Different parts of the Defense Department will be able to detect security incidents at different rates over differing periods of time. But all of them are coming up to speed."

In addition, the DIAP is no longer run by the DISA. Now the DIAP reports to Defense Secretary William Cohen, while Deputy Secretary John Hamre is in charge of operational oversight. This configuration gives the DIAP more autonomy from the DISA's poli-

...s. DIAP Director Schaefer says.

Schaefer's team is now implementing security enhancements throughout the various networks that communicate over the DISA backbone. Much of this organizational approach was outlined in DISSP documentation.

"Maybe as a program the DISSP didn't survive; but many parts of it did," says Ed Hart, formerly director of the NSA's INFOSEC program, which was part of the DISSP in the mid-90s. "And the NSA has certainly continued to spend money on security enhancements."

The DIAP team has begun new penetration tests and assessments on defense networks to help plug leaks and show clients where to standardize on firewalls, intrusion detection and other security technologies. And the DIAP is also examining critical infrastructure vulnerabilities where Defense Department networks rely on private industry, such as data services and electricity.

"Good operational security is the linchpin to securing such a complex enterprise," says Cisco's Ziese in praise of today's DIAP efforts. "If we have some level of standardized security configuration, it helps make it a lot easier to recover after an attack."

But with a budget of $147 million for FY 2000 and $167 million for FY 2001, the DIAP is getting only one-fourth of what former NSA Director Jay McConnell said was needed to maintain "minimum security" in a June 1994 request for additional funding.

What's more, would-be threats from other countries have become more sophisticated.

If the DISSP had flourished, Schaefer says, "We'd be light years ahead today in terms of networked information security."

A former member of the DISSP team adds: "Now Cohen and Hamre are behind the program, but look at how many years it's taken and how many years we've lost. The unclassified systems are used for logistics, parts procurement, human resources. From those networks, you can garner a hell of a lot of information, including troop movements and buildup."

Even though several years have gone by, the DISSP's plight still riles some of the former players, Hart surmises.

"But this is not unlike any other technical revolution. Those most in the know technically tend to be well out front," he says. Unfortunately, those in front are the first to get shot.

Still, Hart contends that the Defense Department "has the best thing going in terms of information security." If the new DIAP administration can use the DISSP's groundwork and sidestep its pitfalls, "maybe the sweat, blood and tears that went into building the program was worth it," he says.

Radcliff is a freelance writer in northern California who specializes in reporting on high-tech crimes. She can be reached at DeRad@aol.com.

Micron NetFrame 5200

Micron's NetFrame 5200 is the vanilla ice cream of general-purpose midrange workgroup servers. Its case, motherboard, processors and management software are from Intel, and no hardware subsystem components were designed by Micron. It scored an unspectacular 7.7, but this moderate score is tempered by its relatively inexpensive price of $13,145.

This server is a fair performer, scoring 8.3 out of 10 in overall performance. The NetFrame 5200 scored a 10 for the CPU and network tests, most likely due to its 550-MHz Pentium III processors. However, a 5 in the file test, likely due to a poorly performing disk controller, brought down its overall performance score. To derive the performance score, we weighted the file, SQL and network tests at 35%, 35% and 30%, respectively.

The server case's lockable front bezel houses the diskette, CD-ROM and hard drive cage, and the power switch. You have to remove three screws to open the side of the case to access the roomy interior. Serviceability in this server leaves much to be desired; you need a screwdriver to remove almost

Micron's workgroup server does well in CPU and network benchmarks, but its other features fail to stand out.

BY JOHN BASS, NETWORK WORLD TEST ALLIANCE

everything, and components are only moderately accessible. The drive cage has the capacity for six hot-pluggable 1-inch hard drives. The server can be used in a stand-alone or rack configuration.

The server supports as many as three power supplies. One power supply is enough to run the server. A configuration with two power supplies provides load balancing and redundancy, but in that config-

uration, the power supplies are not hot-swappable. Three power supplies gives the server hot-pluggable capability, power load balancing and 2+1 redundancy.

This NetFrame 5200 came with two 550-MHz Pentium III processors, 512M bytes of RAM, five 9.1G-byte hard drives and two Fast Ethernet network interface cards (NIC). The processors are housed in a screwed-in retention system. The drive cage is connected to an onboard Adaptec 7896 Ultra2 SCSI controller. An UltraNarrow SCSI controller is provided on the motherboard for slower peripherals. The motherboard supports six PCI slots — three are 66MHz and three are 33MHz — and six Single Connection Attach hard drive slots.

NT and NetWare were installed

Features and configurations

NetFrame 5200
Micron
(800) 209-9686
www.micronpc.com/commercial/servers/departmental/nf5200/index.html
$13,145

Processor type	550-MHz Pentium III
Number of processors	2
Number of processors supported	2
Memory configuration	512M bytes
Number and type of RAM slots	4 PC-100 SDRAM
Expansion slots present	(5) PCI, (1) PCI/ISA*
Expansion slots available	(5) PCI
Disk controller	Onboard Adaptec 7896 Ultra2 SCSI controller, 7860 UltraNarrow SCSI controller
Hard drive description	IBM 9.1G-byte Ultra2 SCSI 10K rpm
Number and description of hard drive bays	(6) hot-pluggable SCA 1-inch slots
Network interface	Onboard Intel 82558 Pro 100+ Fast Ethernet interface, PCI Intel 82558 Pro 100+ Fast Ethernet interface
CD-ROM	NEC 40X max IDE
Availability features	ECC memory, hot-pluggable drives
Manageability features	Intel Emergency Management Port, Intel LANDesk Server Manager 6, integration software for Tivoli, Unicenter TNG, HP OpenView
Security features	Front panel keylock, intrusion-detection switch
Bundled software	Intel LANDesk Server Manager 6
Warranty	5 years for processors and RAM, 3 years for all parts, 1 year on-site next business day

*(All slots are 32-bit; 3 are 66MHz PCI slots; the remainder are 33 MHz.)

a RAID 0 stripe set configured by each operating system. The drive backplane was connected directly to the Ultra2 SCSI controller port on the motherboard. The onboard Fast Ethernet NIC and the PCI NIC were configured for full-duplex 100M bit/sec operation.
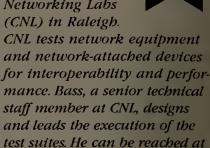
Micron bundles Intel LANDesk Server Manager 6 with NetFrame 5200 for management.

Even though the server seems average in design, Micron offers an aggressive service package, providing installation and orientation, data migration services, data recovery services and enterprise service plans for Micron and third-party equipment.
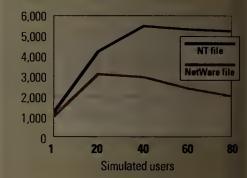
Benchmark results
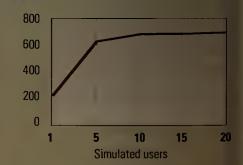
We used Bluecurve's Dynameasure File Professional 2.0 and Dynameasure SQL Professional 2.0 to measure I/O and CPU-intensive operations, and Ganymede Chariot to stress the network interface.

File server tests (K byte/sec)

NT file
NetWare file

Simulated users

SQL tests (transaction/sec)

Simulated users

Network tests (M bit/sec)

NetWare

NT

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6. Learn how Gigabit Ethernet and ATM complement each other in the enterprise

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Moderators

John Gallant, *Editorial Director*, Network World and **Kevin Tolly**, *President*, The Tolly Group

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Penn puts out an SOS

Insourcing program challenges staff while providing valuable service to campus users.

BY PAUL DESMOND

When a key member of your support staff announces he got a better offer and is leaving your company, it likely begins a roller-coaster ride that has you scrambling for interim support help, pouring over dozens of résumés in search of a worthy replacement and conducting seemingly endless interviews.

The University of Pennsylvania in Philadelphia has found a better way. Since 1994, the school has been operating an "insourcing" program whereby a central IT organization provides individual departments with full- or part-time support personnel, recruiting help and project management planning — all for a fraction of the cost of the same services on the open market.

The Support-on-Site (SOS) program is part of the university's Information Systems and Computing (ISC) organization, which provides the IT infrastructure for the school's 45,000 students, faculty and staff.

SOS users like the arrangement because they can take advantage of workers who know where to turn to get answers and resources. SOS staffers like the program for many of the same reasons, plus some others such as opportunities for training and advancement they wouldn't likely get working full-time within a single university school or department.

"When we started doing this, we had seen folks leaving for external companies," says Don Montabana, founder and senior IT director of SOS. "My notion was to insource at the university to make sure that the intellectual capital that was on campus stayed here."

SOS comprises 28 people and offers four distinct services:

• **Distributed Staffing Service.** Full-time support professionals are placed in university administrative offices, schools and other units. Workers are part of the central SOS group, giving them access to all the resources of their SOS colleagues and the larger ISC organization. They also report to a local manager in the department where they work and act as an advocate for that department's computing needs.

The client pays the employee's salary, benefits and a 15% management fee — capped at $7,500 — that covers training, recruiting, hiring and mentoring.

• **Dispatch Service.** This short-term computing support service helps tide departments over while they search for permanent replacements, and offers help with special projects, consulting and troubleshooting. The service costs a flat $75 per hour, although bulk discounts are available. Some local services may appear to be less expensive, but Montabana says SOS staffers know the school's computing environment better than anyone else.

"If it takes us an hour to solve a problem and it takes a local provider two, you lost on that one," he says.

• **IT Recruiting Service.** Being Penn employees, Montabana says his group is uniquely qualified to find suitable candidates. "We try to do not only a technical fit, but also a personality fit," he says.
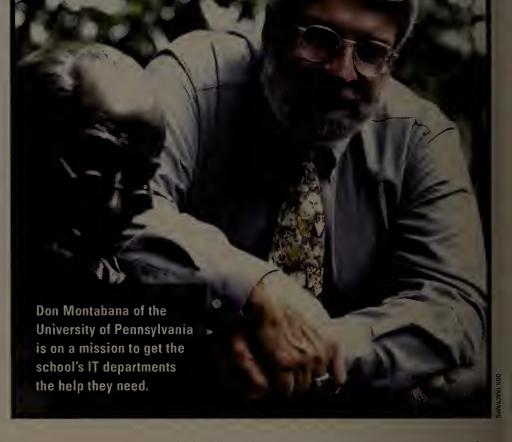
The cost for the recruiting service is 15% of the new hire's salary. "Most external recruiters charge 20% to 30%," Montabana says. The difference is he's not trying to make a profit. "I just have to break even."

• **Technology Planning and Data Management.** This latest SOS service includes helping departments with computing needs analysis and feasibility studies as well as project management. "The notion is to help units make informed business decisions," Montabana says.

A hit from both sides

SOS services users cite a number of program benefits, most relating to the technical support that being part of the larger ISC group provides. "It helps support people get oriented faster to how things work at Penn," says John Irwin, director of computing services at Penn's Graduate School of Education. Irwin has two full-time SOS people working in his department, one a system administrator, the other a help desk coordinator.

Having someone to ease the hiring burden doesn't bother Irwin either. One of his SOS staffers left the organization last month, but Irwin was able to turn to the SOS relationship manager, Cathy DiBonaventura,

for help filling the vacancy. DiBonaventura generated a list of qualified candidates, then reviewed the list with Irwin. They are interviewing job candidates.

Irwin likes having a relationship manager to help supervise his staff and map out individualized training programs. And naturally, the IT professionals who make up SOS benefit as well.

SOS works to forge a sense of togetherness among the staff, for instance by holding weekly lunches.

"We stress networking with these folks so they get to know each other as peers," Montabana says. "If you like each other, it really helps."

Eric Snyder, a senior support specialist with SOS who works for ISC's network group, says the luncheons usually spur a technical discussion. As a result, staffers learn about everything from problems others are having to new bugs in operating systems.

Montabana thinks a program similar to SOS could work in a corporation as well, providing it was run by personnel that had a thorough understanding of the company's various business units.

"I would love to try and do this in a corporate environment," Montabana says. "It'd be a little tougher, but it could be done."

A former Network World editor, Desmond is vice president of King Content, a custom publishing and editorial services company in Walpole, Mass. He can be reached at paul_desmond@king-content.com.

Don Montabana of the University of Pennsylvania is on a mission to get the school's IT departments the help they need.

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Lotus introduces instant meetings

BY JOHN FONTANA

CAMBRIDGE, MASS. — Lotus last week enhanced its Sametime real-time collaboration server with a new feature that lets end users set up instant meetings.

The instant meeting technology in Sametime 1.5 builds on the product's existing real-time chat technology. Lotus' intent is to let users instantly convene an interactive data conference online, complete with documents, spreadsheets, interactive presentations and other applications.

Ready in an instant

Lotus last week unveiled the next version of its Sametime server for instant messaging, chat and application sharing. Here is a look at its features:

Feature	Description
Instant Meeting	Shares data, applications with groups of users.
Connect Client	Now compatible with AOL client.
Administration	Real-time user monitoring, message broadcast.
Message Encryption	Feature now works throughout Sametime environment.
Tool kit upgrade	New APIs to build meeting-based applications.

Lotus also revealed that its Sametime Connect Client for instant messaging now works with America Online's Instant Messenger; the integration stems from a deal the firms struck in January. The relationship is in sharp contrast to a battle AOL and Microsoft began last week after Microsoft took it upon itself to link its instant messaging client to AOL's Instant Messenger.

While Lotus' Sametime technology hasn't taken off yet in the enterprise, the technology is gaining momentum.

"We've done a cost analysis of our overnight packages, faxes and phone calls, and we think we will see a payback on the Sametime server within a year," says John Lugar, executive vice president of WestSphere Equity Investors LP, an equity investment company in New York. WestSphere is spread across North and South America and is very document-driven, according to Lugar.

"Now I send an instant message to a colleague in Buenos Aires, and we can begin to collaborate on documents in real time," he says.

Sametime 1.5 uses its instant messaging feature as a way to invite users into an instant meeting. When an invitee responds, an applet is loaded into the end user's browser to support the sharing of data and applications.

The service can support sessions with internal and external end users. However, traversing a firewall can be tricky. To address this issue, Sametime 1.5 includes tunneling capabilities for HTTP, HTTPS and SOCKS 4.0 and 5.0.

"Lotus is attempting to enhance its proxy support, but the issue is not easy to overcome because firewall technology varies so much," says Mike Comiskey, an analyst with International Data Corp. in Framingham, Mass.

Lotus Sametime 1.5 server, which is scheduled to ship next month, includes a tool kit for building applications and supports 16 languages. The server, which runs on Windows NT, is priced at $5,000. The client access license is $20 per user. An extranet version of the server is priced at $10,000 and provides for an unlimited number of users.

Also last week, Lotus acquired Macromedia's Pathware, a technology for managing and tracking online classroom work. Lotus plans to integrate the technology into Lotus' LearningSpace server, which supports instructor-led virtual classrooms.

Lotus: www.lotus.com

Messaging,

messaging standard. AOL's support of the group — which is expected to propose a standard before year-end — is important because AOL has 40 million users of its instant chat and buddy list capabilities.

In a related move, AOL asked several computer industry leaders to join an advisory committee on instant messaging standards. The committee consists of Apple interim CEO Steve Jobs, AOL Chief Technology Officer Marc Andreessen, Real Networks Chairman Rob Glaser and Novell CEO Eric Schmidt.

Missing from the committee is Microsoft, which is engaged in a still-unresolved battle with AOL regarding the ability of their instant messaging systems to work together.

Whether AOL's committee will advance the standards efforts remains to be seen. "The members are recognizable names but not necessarily people who will make technical decisions about what will go out over the wire," says Gordon Mohr, CTO at Activerse and a member of the IETF group. More important is if AOL's engineers "express their interest and expertise inside the IETF," he says.

Getting a standard approved will further drive corporate use of instant messaging, predicts Mohr, whose company sells Ding, an instant messaging package for corporate environments. "Having a standard will make instant messaging a safer choice," Mohr says, adding that a standard could push the technology "into overdrive."

"Instant messaging is going to be hugely important. It could easily be the next killer application," says Keith Moore, an applications area director for the IETF and a researcher at the University of Tennessee. "It's very useful for people who are telecommuting to be able to see who else is online and have quick chats with their co-workers.

"The telephone turns out to be very awkward in these situations. . . . ," he continues. "But where instant messaging has a lot of potential is when it is combined with wireless technology. It will help people stay in touch, not just when they're in front of their computers."

The IETF's Instant Messaging and Presence Protocol standard is still in its preliminary phase.

"The working group is trying to define the problem that the standard will solve," Moore says. "People have very different ideas about what instant messaging is. . . .We need to make sure that scalability and security are built into the standard. And it has to be able to deal with wireless transmission."

Moore predicts the stan-

Instant messaging: You've got choices

Some examples of instant messaging programs and where to download the software:

- **America Online's Instant Messenger service.** Available at www.aol.com, lets users find and chat with AOL and Lotus Sametime users.

- **Microsoft's MSN Messenger service.** Available at home.microsoft.com, lets users find and chat with MSN and AOL users.

- **Lotus Sametime 1.5.** Available at www.lotus.com/home.nsf/tabs/sametime, lets uses find, chat, share documents and applications, and host meetings with other Sametime and AOL users.

- **Tribal Voice's PowWow for Private Networks.** Available at www.tribalvoice.com, lets users find, chat, talk and transfer files to other PowWow users individually or in groups.

- **Activerse's Ding!.** Available at www.activerse.com, lets users find, chat and exchange files with one or more Ding users.

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dard's first draft will be released by year-end, and companies will start supporting the standard in their products early next year. Companies represented in the IETF group include Lotus, Microsoft, AT&T and Activerse.

Members of the IETF group look forward to participation from AOL engineers.

"Regardless of whether this speeds up or slows down the work, a broader constituency seems likely to improve the quality and acceptability of the result," Moore says.

Patrik Faltstrom, an applications area director with the IETF, says the group will develop its standard using a "rough consensus" approach. The procedures used by the IETF will put AOL on the same footing as companies such as Microsoft that are already participating in the group.

"We can look forward to interesting work in the IETF," he says.

Instant messaging standards came into the forefront in late July, when Microsoft introduced MSN Messenger service, which lets its users communicate with users of AOL's Instant Messenger service as well as other users of Microsoft's product.

AOL asserts that Microsoft's action was unauthorized, and as a result, AOL is blocking traffic from MSN Messenger users. AOL also blocks instant messaging traffic from Yahoo and Prodigy Communications. ◪

"This is probably the most flexible application of this concept that I've seen," says one systems integrator who has been beta-testing the product, but asked not to be identified.

He says that when Turbo-Linux releases the full version of the software this fall, the product will likely support IP tunneling and Novell Directory Services, and include server management capabilities.

TurboLinux, formerly known as Pacific Hi Tech, declined to provide pricing information for TurboCluster. Beta testers expect the software to sell for less than $1,000 per server.

Show roundup

Here is sampling of other anticipated announcements:

● IBM plans to introduce a new workgroup PC server optimized to run Linux from Red Hat, SuSe, TurboLinux or Caldera. The 2500 MT server is a two-way Intel processor-based box that will likely cost less than $2,000. IBM is also expected to release RAID adapter cards with drivers written to Linux specifications. IBM declined to disclose details about other upcoming Linux announcements, but said it would be very active at the show.

● Magic Software will release a Linux port of its eMerchant business-to-business electronic commerce application. The product provides transaction processing and consumer profiling capabilities. EMerchant works with Informix and Oracle databases, and runs on the latest commercial distributions of Linux. Pricing information was not available.

● NovaStor will introduce a version of its PC and workstation backup product for Linux. NovaBackup 8 will support tape as well as CD/DVD backup. The product, which will cost about $60 per user, will also run on Windows 95, 98 and NT, and OS/2.

The company is also working on porting its NovaNet enterprise backup product to Linux by year-end.

TurboLinux: www.turbolinux.com; IBM: www.ibm.com; Magic: www.magic-sw.com; NovaStor: www.novastor.com

Senior Writer Marc Songini contributed to this story.

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their equipment suppliers and Internet software companies — not makers of enterprise network gear. According to the quarterly Network World/PricewaterhouseCoopers Venture Capital Survey, nearly 75% of the more than $2 billion in venture capital spent during the first quarter went toward Internet companies (*NW,* May 24, page 1).

"It's not even fun to play in the enterprise market anymore," says Tony Sun, managing general partner at New York-based Venrock Associates, which now largely invests in companies that cater to service providers and small businesses. "Forget the products. It's all about distribution."

Customers are also noticing the trend. "I do see the emphasis from most of the product providers going into the carrier market these days," says Mike Ackermann, manager of network planning and design at Blue Cross/Blue Shield in Detroit. His company is already being pitched equipment usually aimed at carriers, as it considers deploying Nortel Networks' Passport switches. Ackermann says the switches are rock-solid and reliable, but more complex to support than typical enterprise gear.

Why this ambivalence toward the enterprise?

One reason is that Cisco's dominance of the enterprise market leaves little room for newcomers, observers say. And with t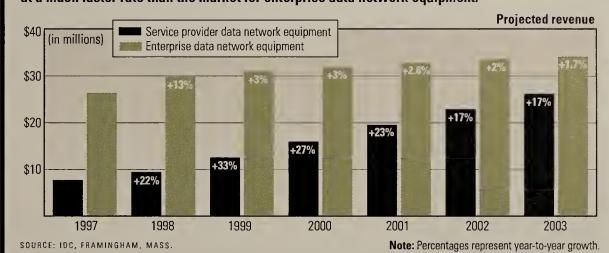he continuing commoditization of enterprise network hardware, Cisco and others with established distribution channels have a decided edge over start-ups.

Even leading network equipment makers are investing a smaller share of their research and development dollars on enterprise gear. Cisco, for example, now splits its R&D spending about evenly between enterprise and service provider technology — this from a company whose service provider business unit is only about a year old.

It also seems that there are few ideas being born that are so revolutionary they require new companies to promote them. Emerging technologies such as 10G bit/sec Ethernet, for instance, will probably just be added to existing products rather than form the basis of new companies.

The new breed of equipment makers — companies such as Juniper Networks and Atmosphere Networks — is attracted to the service provider equipment market, which market research firm International Data Corp. says is growing three times as fast as the enterprise network equipment market.

Many of the established network equipment firms, such as Cisco, Nortel and Cabletron, are actually playing both sides of the fence by catering to enterprise net customers and service providers. They are looking to deliver gear for building "end-to-end" networks that stretch from customer sites into the core of service provider networks. Some of their new products will be used for managed services, in which service providers locate equipment on customer sites, then monitor the gear for the customer.

Meanwhile, the last of the core enterprise network equipment start-ups are going public. Extreme Networks had its initial public offering in April, while Foundry Networks and Alteon WebSystems filed to go public earlier this summer.

But industry watchers don't think the companies will stay independent for long. Even FORE and Xylan — both of which successfully sold enterprise network gear for much of the 1990s despite competition from larger vendors — have been swallowed up in recent months by traditional telecom equipment makers.

Such acquisitions could further stifle initiative because telecom vendors are slower to move than smaller, nimbler companies, says Stan Schatt, research director at Giga Information Group in Boston. "We're in kind of a lull in the enterprise campus network" in terms of innovation, adds Paul Zagaeski, senior industry analyst at Giga.

For example, the demand just doesn't appear to be there for advanced voice and data convergence products. This is partly because it's so inexpensive to just throw bandwidth at surging network traffic loads. The lack of quality-of-service standards is also delaying voice/data convergence projects, observers say.

Industry watchers see opportunities for innovation at the fringes of the enterprise network, rather than in core switching and routing functions. Storage-area networks are one emerging area. Switches that balance loads among Web servers are another, although these are used primarily by Web-hosting service providers. Edge devices that provide for virtual private networks are also gaining in popularity and have become something of a start-up hot spot.

But the age of the spunky start-up going after parts of the network ruled by Cisco seems to be coming to a close.

"It's hard to go after that market because the distribution channel is so splintered," says Michael Speyer, an analyst with The Yankee Group. "How do you market to 10,000 value-added resellers if you don't have a huge war chest?" ☑

Playing catch-up

Though the market for service provider data network equipment is smaller today, it is growing at a much faster rate than the market for enterprise data network equipment.

Projected revenue

(in millions)

■ Service provider data network equipment
■ Enterprise data network equipment

	1997	1998	1999	2000	2001	2002	2003
Service provider		+22%	+33%	+27%	+23%	+17%	+17%
Enterprise	+13%	+3%	+3%	+2.8%	+2%	+1.7%	

SOURCE: IDC, FRAMINGHAM, MASS.

Note: Percentages represent year-to-year growth.

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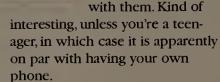# Paying attention to the messaging

MARK
GIBBS

t is funny what we do and don't pay attention to in the computer business. "Little company gets the runaround by big company" doesn't make the news but "Big company runs around enormous company" does. Perhaps I'd better explain. . . .

Earlier this year, Prodigy — once the poster child of the consumer online world, now an enfeebled but still fighting ISP — released Prodigy Instant Messaging (PIM). PIM is a utility that does what America Online's Instant Messenger (AIM) does.

For those of you who have managed to remain blissfully unaware of AIM, let me enlighten you: AIM is a program that lets you chat with your buddies online. Once you and your buddy register with an AOL server and you log on, that server checks to see if any of your friends are also running AIM.

If you are logged on and any of your friends suddenly logs on, AIM makes an irritating sound like a squeaky door opening and lets you have a text chat session with them. Kind of interesting, unless you're a teenager, in which case it is apparently on par with having your own phone.

<digression>I'm getting burnt out on the plethora of sounds applications now generate. Combine those noises with the various beeps and pings that hardware delivers and the average office starts to sound like the depths of the rain forest. And if you like to work with music playing, the mix can be very irritating. The Windows start-up theme goes very poorly with Sly & Robbie's "Drum & Bass Strip To The Bone," the album of the month here at Gibbs Towers. </digression>

<byteway>And there's another problem: identifying what is making a particular sound. I have been trying to track down something in my office that is beeping every few minutes for almost a month. I have enough equipment in here to make this difficult, and the damn thing has never gone off when I'm near it.</byteway>

Anyway, one of the neat things about PIM is, or rather was, its ability to interoperate with AIM. I say "was" because despite openly publishing the specifications for instant message-style communications to foster a third-party market, AOL decided that Prodigy was the kind of third party it didn't want involved and blocked interoperation between PIM and AOL's back-end services. Was that much news? Nope.

Now Microsoft has got in the instant messaging act with its own version, Microsoft Messenger, and AOL has done the same thing to the Redmond mafia's product. Is that news? You bet.

I suspect the reason it is news is simply because Microsoft is involved. This means there is a real, valuable market to be fought over, something that little ol' Prodigy's involvement could never validate.

The really interesting thing here is AOL's positioning. It smacks of all the antitrust-type behavior of which AOL accused Microsoft! Steve old buddy, you can't have it both ways.

Be that as it may, it raises the question of wither instant messaging? Will the market explode into a number of isolated communities? Will some enterprising hacker create a bridge between the two systems? (Perhaps a server running multiple copies of Messenger, AIM and PIM in some kind of wild proxy setup?) Or will the market, in a mass bid for freedom, go with the first vendor to offer a truly open standard?

Microsoft is (somewhat uncharacteristically) leading the charge for an open standard, but I'd love to see the Internet Engineering Task Force or the World Wide Web Consortium get ultradynamic and get involved.

This fracas is going to be entertaining, and as it is played out, the politics will show the combatants in all their commercial glory. My money is on AOL losing out. But you can bet we'll pay attention.
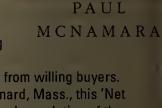
News to nwcolumn@gibbs.com.

PAUL
MCNAMARA

Outside of eBay cultists, who really gives a hoot about using the Web to auction off Beanie Babies, Grandma's chipped china or Mark McGwire baseball cards?

Certainly not you, being a no-nonsense network executive.

But what if a Web auction offered you and your business something of far greater value than a musty stack of 1970 *Playboy* magazines or a velvet Elvis mural? . . . How about cheap electricity and natural gas?

North American Power Brokers applies Web-based auctioning to that higher calling by enlisting 50 energy suppliers to bid online for electricity and natural gas orders from willing buyers. Based in the old Digital mill building in Maynard, Mass., this 'Net start-up has hit upon a formula for exploiting deregulation of the $360 billion energy industry — a formula that has no obvious downside for customers. The auction service, known as the Retail Energy Exchange, resides on the Web at www.energyagent.com.

"We're convinced that all energy transactions are going to occur via the Web at some point," says **Jeff DeWeese,** chief operating officer of North American Power, which makes its money from transaction fees paid by bid winners. The 30-employee company will announce a name change and service upgrades within the next few weeks that DeWeese hopes will help build its customer base and ward off business imitators.

One North American Power customer needs no more selling.

"It's a home run from my perspective," says **Bill Doyon,** general manager at the Ethan Allen Inn, a 195-room hotel in Danbury, Conn. "Since I've signed up with these guys [two years ago], I can point to 30 or 40 grand that I would have been pouring out the door if I had just gone with the standard utility. That's 30 or 40 grand on the bottom line."

While your mileage may vary, Doyon says he has saved 20% to 25% on a natural gas bill that had run as high as $6,000 per month.

Now that's what a Web auction ought to do for business.

(By the way, Buzz has a mint set of 1985 Topps baseball cards — including the magic McGwire rookie card — that he just might let go to the highest bidder if someone is willing to grossly overpay and not take too literally the meaning of the word "mint." I've also got a stack of early-1970s *Playboy* magazines, lovingly collected and preserved by my late grandfather-in-law, bless his randy heart.)
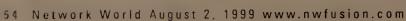

Concerns about privacy, censorship and legislative meddling generate an awful lot of whining among the Internet cognoscenti in this country. And that's not necessarily a bad thing, considering how easy it would be for the excesses of capitalism and democracy to gum up the inner workings of the Web.

On the other hand, we should not lose sight of how lucky we are to be doing our Internet thing here in the good ol' U.S. of A.

Buzz recently had an opportunity to meet **Veni Markovski,** chairman of the Internet Society in Bulgaria, which recently turned back a government effort to impose licensing requirements on ISPs. Service providers haven't been quite so lucky in the Ukraine, however, where an alarming government decree has just been issued, according to Markovski.

"They request ISPs to install special equipment at their network centers so that the services would have access to the e-mail of every Internet user," he says. "This information comes as proof that it is very difficult to try to build democracy and democratic institutions in ex-communist countries. Internet licensing exists only in countries like Russia, China, Singapore, Cuba, and now, the Ukraine."

Although headed for two weeks of R&R, McNamara will still need your help filling this space upon his return. Send Internet tips and gossip to him at (508) 820-7471 or buzz@nww.com.
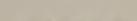
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